

# *Machine and Tool* **BLUE BOOK**

ESTABLISHED 1906

**A.S.T.E.**  
**TOOL SHOW**  
**ISSUE**

**APRIL 1954**

**Grinding Glass Reinforced-Plastics**

**Spade Drills for Large Holes**

**• • •**

**ASTE EXPOSITION**

**Exhibitors . . . Booth Numbers**

**Floor Plan**

**Products To Be Shown**

**Papers and Panel Discussions**

**ON PAGE 5**



...but

## *Experience Cannot be Copied*

More than a quarter-century ago MARVEL invented and basically patented the MARVEL High-Speed-Edge Hack Saw Blade—the UNBREAKABLE blade that increased hack sawing efficiency many-fold.

Every MARVEL Hack Saw Blade ever sold has been of that basic welded high-speed-edge construction, with constant improvements from year to year, as EXPERIENCE augmented the "know-how" . . .

MARVEL is not "tied" to any single source of steel supply, and has always used the best high speed steels that became available from time to time as metallurgy progressed. When-as-and-if finer steels are developed—and are proven commercially practical for welded-edge hack saw blades—MARVEL will use them, regardless of cost or source . . .

There is only one genuine MARVEL High-Speed-Edge! All other "composite" or "welded-edge" hack saw blades are merely flattering attempts to imitate—without the "know-how" of MARVEL EXPERIENCE . . .

Insist upon *genuine* MARVEL High-Speed-Edge when buying hack saw blades—and be SAFE, for you can depend upon MARVEL. They have been "tested", "pre-tested", and "re-tested" by thousands of users for more than a quarter-century!



ARMSTRONG-BLUM MFG. CO. • 5700 Bloomingdale Ave. • Chicago 29, U. S. A.



# Borg-Warner speeds staking job 36%

with a 75-ton

## MULTIPRESS®

***Safer operation, fewer rejects and other production gains reported at Mechanics Universal Joint Division, Rockford, Illinois***

IN this operation, a flat steel disc 3/32" thick is inserted by hand in a steel sleeve used in an automotive universal joint. The disc rests on a shoulder formed where the inside diameter of the sleeve changes abruptly to a smaller dimension.

The sleeve is internally machined, leaving a small, continuous lip of metal just above the edges of the correctly seated disc. With gentle, smooth staking effort, the Multipress ram tooling forces this lip solidly against the edges of the disc. It is a precision operation, as the disc must separate the two different I.D. areas with a permanent oil-tight seal.

The 75-ton Multipress, equipped with a six-station Denison Index Table, is set for continuous cycling. The ram reverses automatically when preset pressure is reached.

The operator simply places the parts in the table fixtures, with the discs properly in place. The parts are then indexed automatically under the ram, and the oil seal is firmly staked in place. At the second index position past the ram, the operator removes the staked assemblies.

In addition to a 36 per cent production gain, Multipress does the job with closer uniformity. Scrap has been reduced to the vanishing point, die life increased, and labor costs cut. The same Multipress brings similar savings on 21 different operations at this plant.



In the thick-walled steel sleeve both outside and inside diameters are larger at one end. A disc-shaped oil seal separates the different areas.



The sleeves, with oil-seal discs in place, are simply placed in fixtures at each of six Index Table stations, permitting continuous loading.



Multipress offers a wide range of bench and floor models, in capacities from one-ton to 75 tons. Manual, footpedal, push-button and automatic controls are available, for single or sequence operations. Dual safety controls and the servo-type Multipress Touch Control are also available. Six-station and 12-station Indexing Tables and many other standard Multipress attachments provide many additional production-speeding advantages. Write for the illustrated story, "MULTIPRESS — and how YOU can use it" . . . there's no obligation.

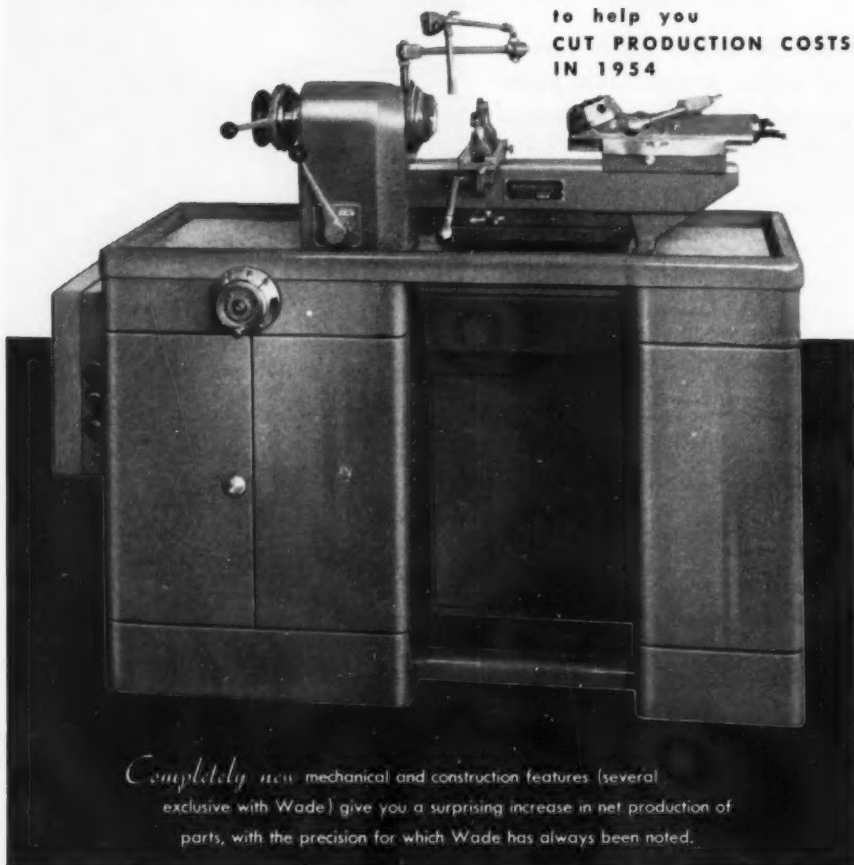
THE DENISON ENGINEERING COMPANY, 1184 Dublin Rd., COLUMBUS 16, OHIO

the **Wade** tool co.

*Announces*

**a brand new design in the  
no. 73 HAND SCREW MACHINE**

to help you  
**CUT PRODUCTION COSTS  
IN 1954**



*Completely new* mechanical and construction features (several exclusive with Wade) give you a surprising increase in net production of parts, with the precision for which Wade has always been noted.

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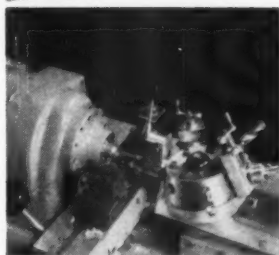
**51 River St.**

**THE WADE TOOL CO.**

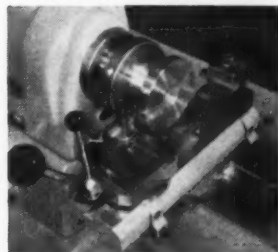
W A L T H A M   5 4   M A S S   U S A

MAKERS OF  
PRECISION TOOLS FOR  
AMERICAN INDUSTRY

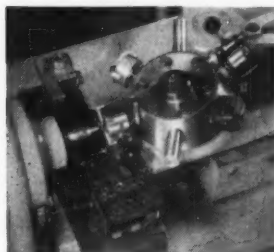
**HARDINGE**  
ELMIRA, N.Y.



**Collet Chucking**—The right machine for collet work of one inch or less in diameter.



**Step Chuck Work**—For rapid and accurate holding of tubing, casting, moldings, stampings, and machined parts. Capacity to 6".



**Bar Work**—Equipped with bar feed, machine is readily converted to high speed bar work.

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*Produce More Parts at Lower Cost*



Correct size of machine in relation to work saves loss from under-capacity production on larger turret lathes. High spindle speeds to 4000 r.p.m. permit full capacity cutting and excellent finish. Sustained accuracy and ease of operation assure precision results.

You need this machine for rapid, accurate production of parts. Save time and money through the use of Hardinge Precision Second Operation Machines in your plant.

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Bulletin DSM 59.*



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# ARMSTRONG



*Quality*  
**TOOLS**



*Not a cost, but an investment  
that pays year after year*

Buy **ARMSTRONG TOOL HOLDERS** and **TOOLS** for today's job and they will bring you added profits thru the years. With **ARMSTRONG TOOL HOLDERS** you will be permanently tooling up for whatever comes, for each is a multi-purpose tool that takes cutter-bits ground to many shapes. Each is an efficient tool, refined thru a half century of world wide use. Each has strength beyond any need, extra strength resulting from endless research and the most modern closely controlled manufacturing methods.

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## ARMSTRONG BROS. TOOL CO.

*"The Tool Holder People"*

5208 W. ARMSTRONG AVENUE • CHICAGO 30, ILL.

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Hitchcock Managers are Listed on Page 64

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# **NEW!** **D·S** MODEL **12**

## **UNIVERSAL FORM RELIEF GRINDER**



Increased life, better performance for practically all end and side cutting tools is now possible. New design gives traverse, not rocking, action with tool remaining on wheel center. Set-up so fast and simple you can standardize on this better grind for tools of 1 to 16 flutes. Easy cam interchange — selective degree of relief without changing cams.

**D·S GRINDER DIVISION**  
**ROYAL OAK TOOL & MACHINE CO.**

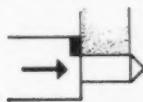
29800 STEPHENSON HY.  
ROYAL OAK MICH.

### **GRIND**

**AXIAL RELIEF ONLY**



**RADIAL RELIEF ONLY**



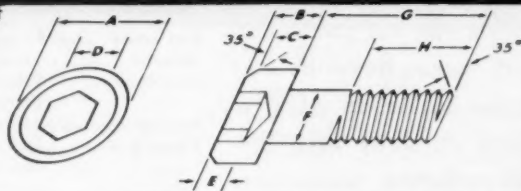
**ANY COMBINATION  
OF AXIAL AND  
RADIAL RELIEF**



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# Mac-it<sup>®</sup> DESIGN ENGINEERING at YOUR Service..



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MATERIAL SAE 4140 STEEL ALLOY RUCHELL

FINISH CHROMIUM PLATING ON STEEL - 6-10 MICH.

TOLERANCE IN LENGTH THE TOLERANCE IN LENGTH IS

A	B	C	D	E	F	G	H
1/8	244	229	181	127	240	5	1/2

## MAC-IT SCREW ENGINEERING

Mac-it fastener engineering is available for screw design to suit all types of applications.

## SPECIAL SCREW PRODUCTS

Mac-it is geared for small or large runs of screws with special design or strength characteristics.

## DISTRIBUTOR SERVICE

Hundreds of distributors from coast to coast insure prompt attention to all screw requirements.

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1392 W. 3RD. STREET • CLEVELAND 13, OHIO  
Manufactured by Mac-it Parts Co., Lancaster, Pa.

Bring your special  
fastener problems  
to Booth 410

**A. S. T. E. SHOW**  
PHILADELPHIA  
APRIL 26-30

# Keeping the cost of BIG

In the metalworking industry, big families of parts can eat profits out of house and home. Nevertheless, they can prove to be an asset if they're studied carefully from the viewpoint of reducing production costs. Cincinnati Application Engineers have been doing this for years with large and small quantities of similar parts that can be machined by the broaching process. Examples of their work are illustrated here. Do they suggest new ideas for your shop? ¶ Perhaps you have a high-cost family of parts—those having similar machining operations. Let us know about them. And if you would like to have more data on CINCINNATI Hydro-Broach Machines, refer to Sweet's Catalog File for Mechanical Industries, or write to us for publications M-1709-1 and M-1745.

**THE CINCINNATI MILLING MACHINE CO.**  
**CINCINNATI 9, OHIO**



## **FAMILY OF 90 CAMS**

Part name.....	Cams (90 sizes and shapes)
Material .....	Cast iron
Operation.....	Broach half bore and parting face
Production.....	140 per hour
Equipment.....	CINCINNATI No. 5-54 Single Ram Vertical Hydro-Broach completely equipped to broach 90 sizes and shapes of cams



# CINCIN

**MILLING MACHINES • CUTTER SHARPENING MACHINES • BROACHING MACHINES • METAL FORMING**

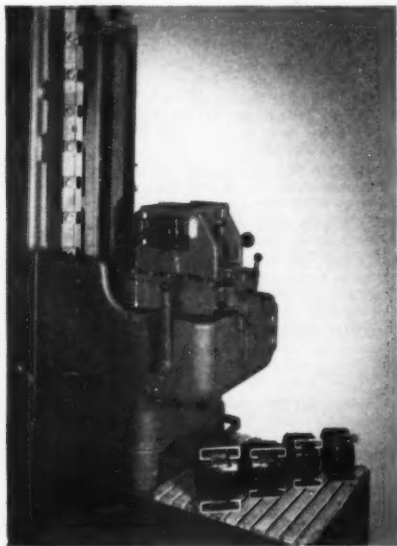
MACHINE and TOOL BLUE BOOK



# FAMILIES at a minimum

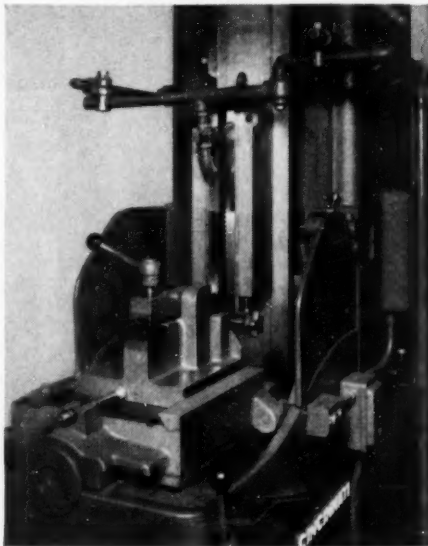
## FOUR IN THIS ONE

Part name... Housings  
 Material .... Cast iron  
 Operation... Broach feet  
 Production... 130 per hour  
 Equipment... CINCINNATI No. 5-54 Single  
 Ram Vertical Hydro-Broach  
 Machine, tooled up with  
 broach inserts (cutters) and a  
 fixture having interchange-  
 able locating elements

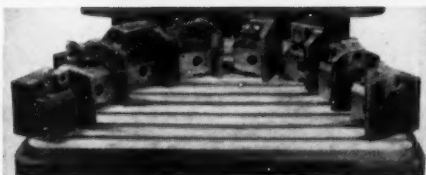


## EIGHT IN THIS FAMILY

Part name..... Terminal studs (8 sizes and  
 shapes)  
 Material ..... Copper  
 Operation..... Straddle broach sides  
 Production..... 125 per hour  
 Equipment..... CINCINNATI No. 5-54 Single  
 Ram Vertical Hydro-Broach Ma-  
 chine, tooled up with broach  
 inserts (cutters), fixture and in-  
 terchangeable fixture elements



# NATI



MACHINES • FLAME HARDENING MACHINES • OPTICAL PROJECTION PROFILE GRINDERS • CUTTING FLUID

# NEW *Hammond* 6" CARBIDE GRINDER

# 6

## Exclusive Features



**BRAKE** on each end for handy, quick stopping when reversing.

**NO SPRAY-NO SPLASH SWIVEL GUARD** closes one side of wheel while other is in use. It is the heart of Hammond's patented No Spray - No Splash feature.

**NO SPRAY - NO SPLASH SPOUT** aerates and breaks up coolant which flows without force.

**NO SPRAY - NO SPLASH PAN** catches any excess spray or splash and keeps operator and floor dry.

**SAFETY CUP DISC** fills the cup of a silicon carbide wheel, preventing tool or hand from entering. An important safety feature — patented.

**TABLE SCREW FEED** makes table adjustment easy and protects against wheel damage.

**TABLE** easily tilts to any degree from 30° above to 30° below horizontal and quickly locks with a single lever. Table is surface ground and has a cored self-cleaning slot.

**TWO MODELS AVAILABLE** — WD-6 Wet or Dry as shown, and D-6 Dry (bench or floor). Is of the same general construction as the Model WD-6 except for the wet equipment.

There are more new and exclusive features on the Hammond Model WD-6 than on any other low-cost wet 6" carbide grinder. It is a full-fledged machine which incorporates the many features of the larger Hammond 10" and 14" Grinders. Compare and you'll find no equal in the low-cost 6" field.

Write for catalog showing America's most complete line of carbide tool grinders and finishers.

"FINEST IN THE LOW PRICE FIELD"

*Hammond Machinery Builders*  
INC.

1614 DOUGLAS AVENUE • KALAMAZOO, MICHIGAN

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Gray Planer Type Miller  
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internationally famous  
turbine manufacturers

*really*  
**MODERN  
MILLING**

*with finger tip control*

● GRAY PLANER TYPE MILLERS with their modern unit head design are setting production records in shops all over the world. The Unit Heads with individual spindle motors make possible a wide variety of simultaneous high horsepower cuts. (Swivel or non-swivel heads are available as desired). The Low Hung Drive to spindle thru a balanced planetary gear train with fly wheel inertia provides the ideal high horsepower carbide cutter drive. Speeds up to 1000 RPM instantly obtainable by the flick of a lever. Terrific power to answer any demand is always at your finger tip. Its performance will prove to you that . . .

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COMPANY**

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U.S.A.**

**A**lthough the PEDRICK PRODUCTION BENDER shown is bending two "D" sections simultaneously for sliding board rails — the same machine is used for bending pipes, tubes, reinforcing bars and structural shapes, by merely changing the die on the central spindle. Most bends can be made in multiple. The automatic duplicate bending feature, included on all models, greatly increases accuracy and production.

WRITE FOR  
DESCRIPTIVE FOLDER  
DEPT. 3

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APRIL 26 to 30, 1954

# **GARDNER** *Grinders*

**Three Machines  
That Will Reduce  
Your Flat Surface  
Grinding Costs**

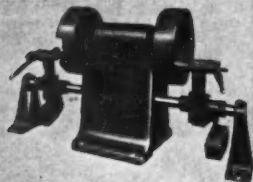


## **DOUBLE SPINDLE GRINDER**

**Grinds TWO Parallel Surfaces  
in ONE operation**

For high production to precision tolerances. Wide choice of work carrying fixtures makes possible "individually engineered" machines at low cost.

## **SINGLE SPINDLE GRINDER**



Gardner No. 226-26" Standard Single Spindle Grinder with hand-operated lever tables on each end. A general purpose machine with wide industry applications.

## **HORIZONTAL DISC GRINDER**



Gardner No. 124-83" Horizontal Disc Grinder used for grinding a flat surface on castings and weldments in a wide variety of sizes and shapes.

REG. TRADE

**GARDNER MACHINE COMPANY**

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Have our qualified experts recommend the tooling that will give you the unusual capacity that pays off in money making metalworking

Whether you're handling routine or special work, you'll get friendly, helpful advice from our representatives at the ASTE show. There'll be no obligation, of course, and we sincerely believe you'll find it well worth your time. *If Davis can't bore it, it can't be done!* Remember, too, that if there's a better way to bore it, Davis will find it.

**DAVIS BORING TOOL DIVISION**  
of Giddings & Lewis Machine Tool Co.  
FOND DU LAC, WISCONSIN



Builders of the world's finest heavy-duty machine tools — Horizontal Boring, Drilling and Milling Machines — table, floor and planer types; Hypo Double Housing and Openside Planers, Planer Type Milling Machines and Vertical Boring Mills; and Davis Cutting Tools.

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... and have all of these tools on display for your inspection and questions

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Booth 1500 Convention Center  
Philadelphia April 21-30



## ***Your nut running costs can be reduced!*** ***with APEX hand-driver-and-socket combinations***

On production line or in maintenance work, Apex hand-driver-and-socket combinations will help reduce the cost of manual nut running operations. One Apex hand driver will accommodate a full range of Apex impact sockets to drive hex head nuts. Sockets are quickly and easily interchanged to meet job requirements instantly.

Apex hand driver, Superloid handle.



Apex hand driver, wood handle

## ***You can reduce your screwdriving costs, too!***

For economy and efficiency on manual screw-driving operations, use Apex hand-driver-and-bit combinations. Driver accommodates service drive bit holder which takes full range of Apex insert bits to drive Phillips, Frearson (Reed & Prince), Slotted, Clutch Head and Socket Head screws. Bits are easily interchanged, can be economically discarded when worn.

# **APEX TOOLS**

## **hand drivers, sockets, insert bits**

THE APEX MACHINE & TOOL COMPANY  
1028 S. Patterson Blvd., Dayton 2, Ohio

### **FOR RUNNING HEX NUTS**

Any of these Apex sockets may be used for spinning, fastening or removing hex head nuts. Impact quality sockets are cold broached and heat-treated for extended service.



Tapered—for  $\frac{3}{16}$ " to  $\frac{1}{2}$ " hex nuts.  
Straight—for  $\frac{3}{16}$ " to  $\frac{1}{2}$ " hex nuts.



Extra Long Length Sockets  
Tapered—for  $\frac{1}{4}$ " to  $\frac{1}{2}$ " hex nuts.  
Straight—for  $\frac{3}{16}$ " to  $\frac{1}{2}$ " hex nuts.

### **TO DRIVE SHEET METAL SCREWS**

These impact quality Apex sockets are case-hardened for use on sheet metal screws, hardened and commercial cap screws.



Tapered—for  $\frac{3}{16}$ " to  $\frac{1}{2}$ " hex head screws.  
Straight—for  $\frac{1}{4}$ " to  $\frac{3}{16}$ " hex head screws.

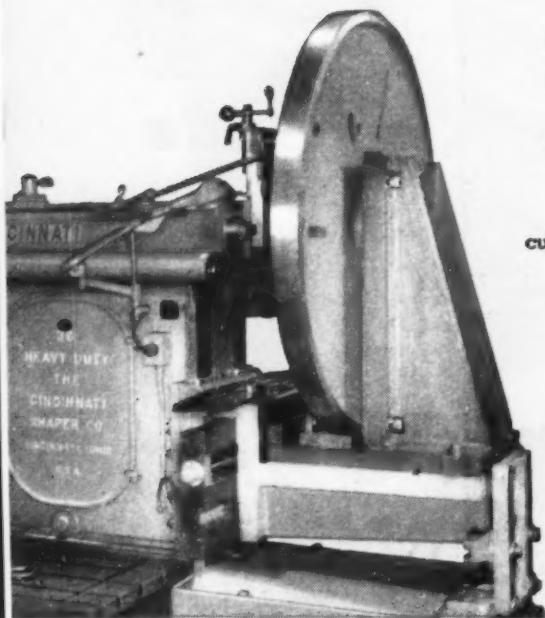
### **Catalog 21**

Write, on your company letterhead please, for your copy of Apex Catalog 21.



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# the **LARGE**



Internal shaping is the only practical method for many "hard to get at" jobs.

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The low cost fixture and tool make this job profitable and simple.

Other economical internal shaping jobs include—

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- Internal contouring.
- Internal teeth on special gears.
- Internal guides in gate valves.
- Internal slotting.

Write for New Cincinnati Shaper  
Catalog N-6.



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CINCINNATI 25, OHIO, U.S.A.

SHAPERS • SHEARS • BRAKES



# job

\* The new Electro-Magnetic Clutch and Brake greatly speeds set-up and operation.



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**"National Network**  
**Service"**  
*when you hook up with a*  
**Morse-Franchised**  
**Distributor**

The five Morse warehouses are linked together with the Morse plant in a complete teletype network, coast to coast. And this instant, constant communication means that your Morse-Franchised Distributor is able to give you top-speed service no matter what your cutting-tool needs may be at any moment ... and no matter whether the particular

tools you need are available right at that moment at any single stock-point. He knows how to find them fast, and get them to you "quickest way". And that goes for the complete line of the finest cutting tools made ... Morse Drills, Taps, Dies, Reamers, End Mills, Counterbores and Milling Cutters. *So always call your Morse-Franchised Distributor.*

**MORSE TWIST DRILL & MACHINE COMPANY**

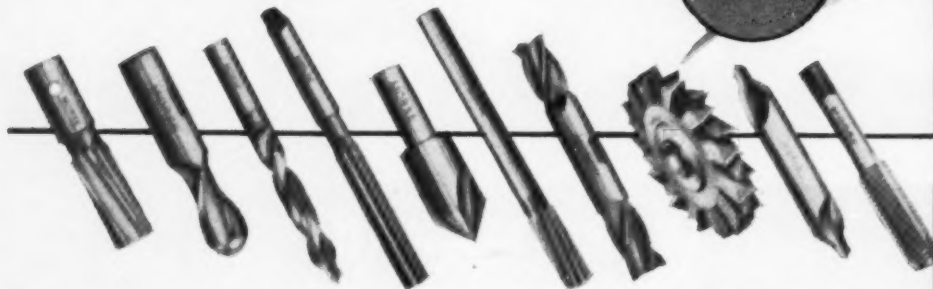
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San Francisco

TWX No.  
SF-1066



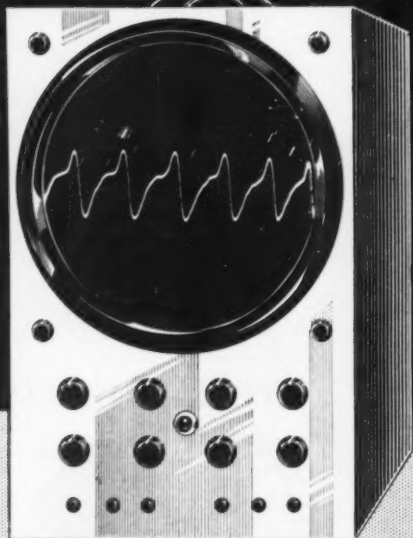


# MORSE

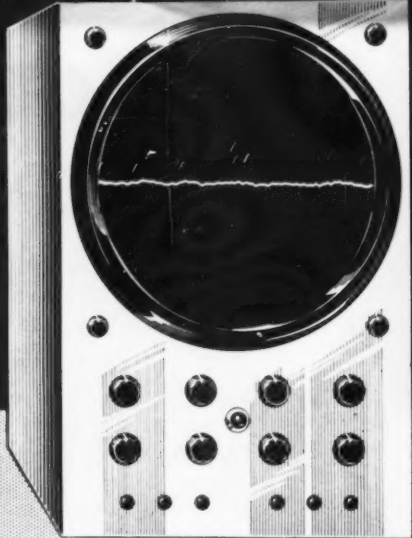
## Cutting Tools

*Buy them by phone  
from your Morse-Franchised  
Distributor and save  
ordering time*

April, 1954



**WHEN A STRAIGHT MINERAL OIL** was used to lubricate the ways, an 0.0008" jump at frequency of 2.74 cycles per second was noted.



**WHEN SUNOCO WAY LUBRICANT** was used on the ways, the jump was too small to measure, proof that this medium stops slip-stick motion.

## TEST PROVES SUNOCO WAY LUBRICANT ENDS SLIP-STICK TABLE MOTION

How effectively Sunoco Way Lubricant stops slip-stick table motion is graphically illustrated by these oscillograms. The pattern on the left was made with a straight mineral oil as the lubricant; the other was made with Sunoco Way Lubricant on the ways. The patterns on the oscilloscopes are magnifications of changes in rate of table travel and

were obtained under identical operating conditions.

You can stop slip-stick table motion, protect the ways, get better surface finishes, cut production losses with Sunoco Way Lubricant. Try it in your shop. For more information, call your nearest Sun office or write **SUN OIL COMPANY**, Philadelphia 3, Pa., Dept. MT-4.

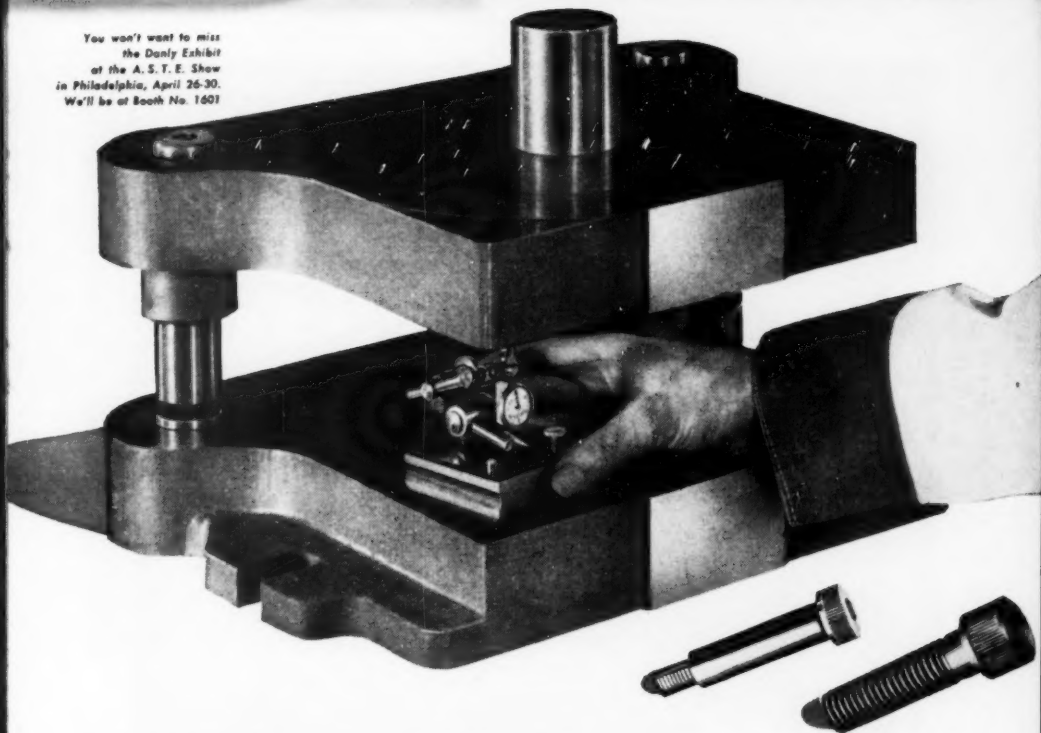
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at the A. S. T. E. Show  
in Philadelphia, April 26-30.  
We'll be at Booth No. 1601



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*Only* **SUPERIOR**

**DIE SETS**

Give You These

**3** *Features*

*For Safer  
Faster Handling*



**1. SAFETY  
FLANGE**



**2. LOCK JAW  
LIFTING DEVICE**



**3. E-Z LIFT  
SLING CHAIN**

It's no longer necessary to take needless risks in handling die sets. Risks that might easily injure the hands of skilled die makers, ruin costly dies in process or completed, or even damage press equipment. Safety features of Superior die sets have eliminated all of these dangers and have speeded up the overall handling of sets from the bench to the press. Prove to yourself the merits of these safety features in both small and large die sets.

**FREE CATALOG** — Write today for this helpful data on Superior die sets and die makers' supplies.

**SUPERIOR** STEEL PRODUCTS CORP.  
2754 S. 19th ST., MILWAUKEE, WIS.

You Are  
Cordially Invited  
To See Our Display

**BOOTH**

**103**

**A.S.T.E. SHOW**

Philadelphia

April 26 to 30



# HALLWELL CLAMPS

Guaranteed to Pay For Themselves!



## SAVE TIME • SAVE MONEY

Just 2 easy, fast actions give you wedge-lock holding pressures, depending on size, from 1500 to 4000 lbs. in seconds! 1—Thrust handle forward. Clamp jaw immediately holds material in alignment. 2—Turn handle to increase pressure. No other tools needed.

*A Hallwell Clamp pays for itself by saving time!*

Ruggedly built for long life satisfaction, the precision, vibration-proof action eliminates manual threading and alignment errors. Factory guaranteed...all parts replaceable.

**Better • Faster • Lower Cost**

Call your Mill Supply House  
or write Dept. A-4

"C" • TOOLING • JIG • FIXTURE

Write  
Today



*Illustrated Brochure shows low cost, wide range of capacities and pressures. Comparison proves that you get the best for your money when you specify Hallwell.*



**HALLWELL TOOL CO.**

**BOOTH 1242 WILL BE YOUR**

**information center**

HOW TO USE THE BOOTH  
APRIL 26-30, 1954

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**NIAGARA**

**1954  
INDUSTRIAL  
EXPOSITION**



**APRIL 26-30 INCL.  
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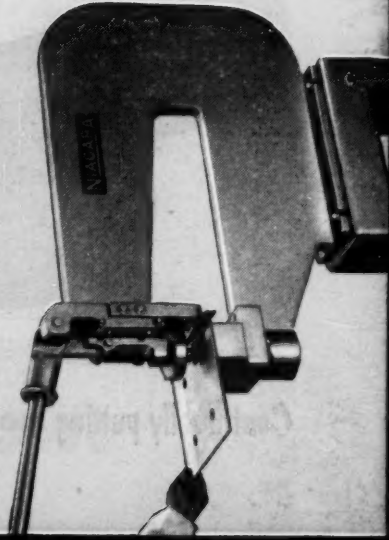
**MACHINES  
IN  
OPERATION**



## **WATCH THESE NIAGARA PRODUCTS AT WORK**

- Air Actuated Squaring Shears
- Electrically Driven Squaring Shears
- Foot Operated Squaring Shears
- Air Actuated Bar Folders
- Multi-drive Power Table for rotary operations
- High Speed Circle Shears
- Universal Rotary Machines
- Power Slip Roll Formers
- Hand Tools

**and on display for the first time  
NIAGARA No. 5-24  
Deep Throat Lever Punch and Shear**



Interest runs high in the Niagara booth at every exposition

## **Most recent developments for Sheet Metal Industry to be featured by Niagara at ASTE Exposition**

Make this your invitation to visit Niagara's Booth 1242 at the ASTE Exposition. Everyone will be glad to see you.

Latest Niagara machines and tools will be on display. Operate them yourself. Find out what they can do for you. Ask as many questions as you wish. Factory engineers will be there to answer them and to make your visit both interesting and profitable.

# **NIAGARA**

America's Most Complete Line of Presses, Shears, Machines and Tools for  
Plate and Sheet Metal Work

**NIAGARA MACHINE & TOOL WORKS • BUFFALO 11, N. Y.**

**DISTRICT OFFICES: DETROIT • CLEVELAND • NEW YORK • PHILADELPHIA**  
Dealers in Principal U. S. cities and major foreign countries



● DISCS cut fast...on the FASTCUT Pad 85 Assembly

## NEW SAND SCREEN: Use both

TRADE MARK



SAND SCREEN by CARBORUNDUM is the new, open-mesh abrasive cloth for sanding and finishing that lets the removed material flow right through...instead of loading and glazing, as conventional abrasive paper and cloth do.

### LASTS 7 TO 15 TIMES LONGER

Because it resists loading, and because you use *both sides*, SAND SCREEN sticks to its cutting job as much as 7 to 15 times longer than conventional abrasives. Both sides are uniformly coated with hard, sharp CARBORUNDUM® Brand Silicon Carbide abrasive grain for fast, easy sanding on metals, wood, paint undercoats and sealers.

### USE IT WET OR DRY...BY HAND OR MACHINE

Use SAND SCREEN the same way you use your present paper or cloth—wet or dry, by hand

Continually putting **MORE SENSE** in your **ABRASIVE**





● CUT SHEETS fit your air or electric vibrating sander



● FOLD it like paper...TEAR it like cloth

## sides...do from 7 to 15 times the work!

or machine. For hand sanding, full 9" x 11" sheets fold like paper, tear like cloth to any width you desire. Cut sheets fit your oscillating or vibrating sanders. Discs give best results when used wet with CARBORUNDUM's FASTCUT Pad 85 Assembly. Ordinarily, no adhesive is needed when sanding flats or slight contours...the surface of the FASTCUT Pad holds the disc in place. Full sheets, cut sheets and discs come in 180 and finer grit sizes.

### WHERE WOULD YOU LIKE TO USE SAND SCREEN?

We will work with you to help you take full advantage of SAND SCREEN's many advantages and cost-cutting features. Just tell us

what operations you would like to test it on. Call your CARBORUNDUM Distributor or Salesman (listed under "Abrasives" or "Grinding Wheels" in the yellow pages). Or, if you prefer, write to us. Send the coupon for a sample and full details, anyway!

### Send for Folder...use this Coupon!

THE CARBORUNDUM COMPANY, Dept. BB 82-46  
Niagara Falls, New York

Rush folder about new SAND SCREEN.

NAME \_\_\_\_\_ TITLE \_\_\_\_\_  
COMPANY \_\_\_\_\_  
STREET AND NUMBER \_\_\_\_\_  
CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

# CARBORUNDUM

REGISTERED TRADE MARK





SEE US AT  
**BOOTH 432**  
PRECISION HALL

## **PRODUCTION TOOLS OF DIAMOND PERFECTION**

*each facet a sign of quality*

Bracket Spindle Assemblies  
Compression and Tension Type Tap Driver  
Counterbore and Spotface Holders  
Drill Drivers  
Extension Socket  
Lower Joint Assemblies  
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Plain Drill Sleeves  
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Spindle Arms  
Turret Tool Holders  
Universal Joints



*Quality*

**MULTIPLE DRILL SPINDLES AND PRODUCTION TOOLS**  
**SEIBERT & SONS INC.**  
**CHENOA, ILLINOIS**

for complete details  
write, phone, or wire

# ELIMINATE INSPECTION REJECTS —CAUSED BY IMPROPER DRILLING **MACHINE-GRIND** *your* **DRILLS** with **OLIVER DRILL POINTERS**

Improperly ground drills make imperfect holes . . . cause rejects, production lags and increased costs. Eliminate this unnecessary bottleneck the Oliver Way:

To increase the wearing life and efficiency of your drills, remove them at the first sign of dullness — sharpen them the way that has been proved best . . . with **OLIVER DRILL POINTERS**.

The balanced cut obtained with **OLIVER DRILL POINTERS** means that each lip of the drill does equal work — makes more perfect holes.

**OLIVER** machine-ground drills assure uniformity and . . . they last from 2 to 3 times longer than hand-ground drills.



MODEL #21

MODEL #510

No. 510 for drills  $\frac{1}{4}$ " to 3"—2-3-4 flute. Variable clearances. Variable point angles. Automatic operation.

No. 21 Oliver Bench Grinder. Hand operated for Drills No. 57 to  $\frac{1}{2}$ " right hand, with an improved point. Attachments are available for grinding oil hole drills, left hand and other special points.

Write for our free Booklet "How To Produce More Holes With Your Drills!" See our catalog in Sweet's Directory

## MACHINE TOOLS by OLIVER include:

AUTOMATIC DRILL GRINDERS  
TOOL & CUTTER GRINDERS  
DRILL POINT THINNERS  
TEMPLATE TOOL GRINDERS  
FACE MILL GRINDERS  
DIE MAKING MACHINES

# OLIVER INSTRUMENT CO.

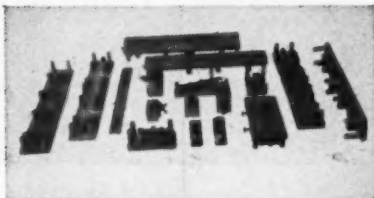
1408 E. MAUMEE • ADRIAN, MICHIGAN

# YOU GET *SPEED* PLUS ACCURACY WITH

## MOORE JIG BORERS

### IN THE TOOLROOM

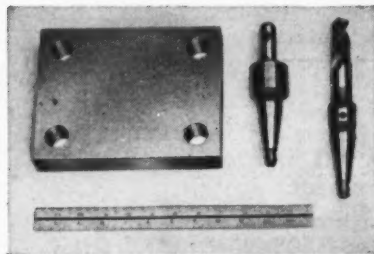
400 holes to "tenths"—5 to 7 minutes each on the No. 1 Moore Jig Borer



Manufacture of this group of drill jigs involves accurately locating, drilling and boring approximately 400 holes. The No. 1 Moore Jig Borer finished them to "tenths" in from five to seven minutes per hole.

### ON PRODUCTION

64 holes to  $\pm .0002$ "—2 minutes each on the No. 2 Moore Jig Borer



Sixteen pieces like this were located, drilled, bored and checked on a No. 2 Moore Jig Borer with one drill and one carbide bit. The 64 holes were finished in 2 hours and 8 minutes (plus 30 minutes setup) with location and size tolerances  $\pm .0002$ ".

Only a precision machine geared to the high American production standards of ruggedness and accuracy can meet these performance requirements. For versatility and speed in spotting, drilling, reaming, boring and checking operations in production as well as tooling, no other moderately-priced machine tool compares with the Moore Jig Borer. And there's no sacrifice of accuracy for speed, since the lead screw measuring system built into each Moore machine permits working to the closest of tolerances.

You'll find that the Moore Jig Borer can pay for itself—in *jig time*. Write today for detailed bulletins.

Moore Special Tool Company, Inc.  
728 Union Avenue, Bridgeport 7, Conn.

#### NO. 1 MOORE JIG BORER

Table working surface of 10"x16". Over 1200 now in use throughout the world. The ideal small, accurate jig borer. Lead screws accurate to .0002" in 16".



#### NO. 2 MOORE JIG BORER

Table working surface of 10"x19". Heavier cuts, larger holes. Features infinitely variable spindle speeds, three power feed ratios, centralized control panel.



# ADD TO YOUR TOOLROOM

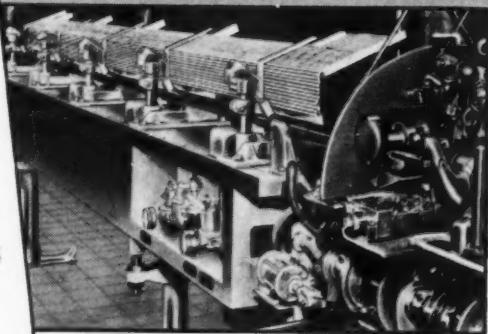
JIG BORERS • JIG GRINDERS • PANTO-CRICH WHEEL DRESSERS • DIE FLIPPERS • MOTORIZED CENTERS • HOLE LOCATION ACCESSORIES

See an important new MOORE development at ASTE Booth 1443



# Now . . . A Screw-Machine-Feed that BREAKS THE TIME BARRIER!

Steps Up  
**PRODUCTION**  
to the  
Continuous Flow  
of the  
**FOURTH DIMENSION:**  
**TIME**



Every time a screw machine cuts air . . . every time feed fingers are adjusted or replaced . . . every time remnant removal forces a shut-down—*that's time lost forever, never again to be made up in the production quota!*

In the modern Lipe Automatic Magazine-Loading Bar Feed, we present a continuous-feed mechanism that utilizes **EVERY MINUTE** of the working day for production . . . and still more production.

There's **NO** cutting air. **NO** feed fingers. **NO** remnant problem. **NO** minimum or maximum run. **NO** limit on length of feed. **NO** selective stock length requirement.

**There IS a definite increase in production—up to 100% on some installations—AT LEAST 30% ON EVERY ONE!**



Bring your stopwatch to the **ASTE Show**, Booth No. 726, where you can clock a Lipe AML Bar Feed in action. If you can't make the Show, write for *free booklet*, "**TIME—the Important 4th Dimension of Production and Profit.**"

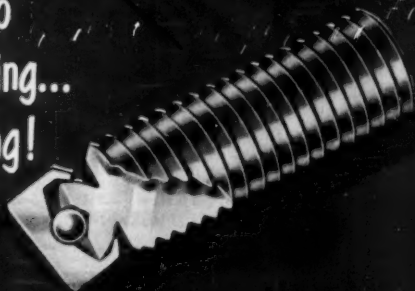


**Lipe - ROLLWAY CORPORATION**

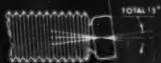
Manufacturers of Automotive Clutches and Machine Tools

Syracuse 1, N. Y.

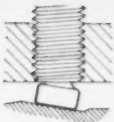
Here's the secret to  
positive clamping...  
freedom from marring!



## SCREW-BALL CLAMPS!



Ball-bearing construction insures frictionless, automatic angle adjustment and rotation; pad swivels freely in all directions up to 7 1/2" from the centerline!



Pad seats firmly on work surface within angular range!



Force distributed equally to pad face. Conical seat distributes force equally in all directions; insures easy alignment in angular applications; greater freedom of motion.



Pad inserts from top of threaded hole or from bottom for easy installation!



Large pad area. Pad is machined from the solid, not counter-bored or relieved; has greater strength plus freedom from distortion!

NO MARRING! No marring of work surfaces. No marring of work surfaces. No marring of work surfaces.

LOW COST! Seven models to fit your needs. No marring of work surfaces.

NO MARRING! No marring of work surfaces. No marring of work surfaces. No marring of work surfaces.

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NO MARRING! No marring of work surfaces. No marring of work surfaces. No marring of work surfaces.

KEEP YOUR SCREW-BALL CLAMPS IN PERFECT  
USE—SAVE YOUR TOOLS AND WORK

Ask your Vliet distributor for a demonstration of screw-ball clamps.



**VLIET ENGINEERING**  
INCORPORATED

### MONEY-SAVING TOOLING SPECIALTIES FOR EVERY REQUIREMENT!



**TORQUE THUMB SCREWS**—  
Apply accurate, controlled end pressures; eliminate distortion to the workpiece. 4 models; 19 sizes!



**VLIET SPRING PLUNGERS**—  
For use wherever accurate, positive spring loads are needed! 4 models; 40 sizes!



**VLIET SPRING STOPS**—  
Provide end pressures in fixtures when wall sections are not available. Two models: 14 and 32 lbs. end pressure.



**VLIET TOGGLE BARS**—  
Assure solid clamping of parts with uneven or off-angle surfaces. 5 sizes; fit almost any clamp.



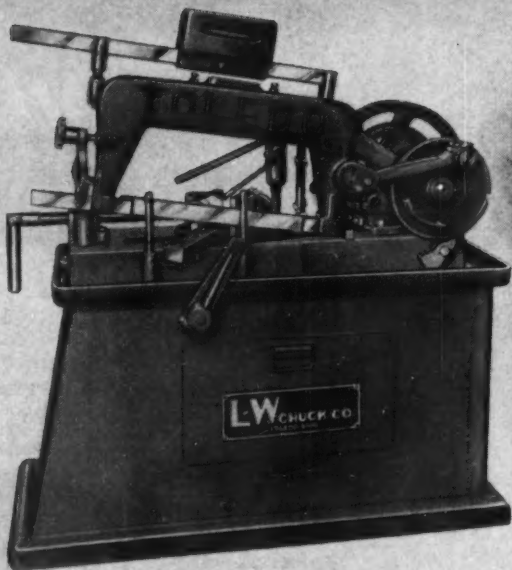
**VLIET FIXTURE KEYS**—  
New 5-Way Key fits every standard mill table slot. 3-Way model also available.

# LW

## FOR THOSE WHO ARE GOOD JUDGES OF VALUES

# POWER HACK SAWS

ONLY  
**\$297<sup>56</sup>**



Stops automatically on completion of cut. Automatic relief of saw blade on non-cutting stroke. 6" x 6" capacity using 10" x 14" blades. 12" x 3" clutch pulley. Pulley speed 120 r.p.m.

Coolant pump base. Swivel vise for angle cuts. All steel welded base and table. V-belt drive. Rigid frame. Gravity feed. Length gauge. Expanding clutch. 3-speed (90 to 130 r.p.m.) V-belt motor drive arrangement. \$32.21, less motors. 1/2 H.P. 1725 R.P.M. motor recommended. Completely motorized with switch; Single Phase \$390.24; Three Phase \$397.03.

**IMMEDIATE DELIVERY — Order from your industrial supply distributor or order direct, giving name of your distributor.**

Send for complete catalog giving prices and specifications on these quality, low-cost L-W Products



# L-W CHUCK COMPANY

23 SO. ST. CLAIR ST.  
TOLEDO 4, OHIO



**TEE-SLOT** on **TRACER-HEAD** accommodates standard or quick change tool holders, square turrets, planer clapper box, grinding attachments, boring bars, etc.

**ROTARY STYLUS** — on Model M-1500 Lehigh **TRACER-TOOL**, illustrated at left, permits cross feed screw to be set and left in one position while successive pieces are machined or cuts are made. Speeds production. Assures accuracy even on old worn lathes.

## Faster — lower cost LATHE DUPLICATING WITH ANY ENGINE OR TURRET LATHE

- No complicated electronic or hydraulic controls.
- Quickly set up without making permanent alterations to the lathe. Does not tie up costly capital equipment.
- Gives complete working visibility and chip clearance.
- Positive stylus contact assured by air pressure to tool through a 3-way valve and pressure regulator. Uses shop pressure.
- Horizontal slide on Tracer-Head operates between pre-loaded ball bearings. Precision built.
- Uses easily made, low cost, hardened templates.
- Proved in hundreds of shops of all sizes and in scores of major manufacturing and service industries for short and production runs.

### MODELS NOW AVAILABLE

EL-1100 to fit lathes 9"-14" .....Price \$375  
M-1500 to fit lathes 16"-24" .....Price \$725  
EL-2000 to fit lathes 24" & larger Price \$975

Prices subject to change without notice • Tool holder and template not included • Air valve and regulator supplied only with Models M-1500 and EL-2000.

### ENGINEERING SERVICE

Our engineering department will be glad to advise you on any duplicating problem. Catalog and engineering bulletins on request.

**BULLARD OPERATIONS** — including outside and inside tracing. Tracer-Head adapts to vertical ram.

**CONTOUR GRINDING** — including internal and external contours.

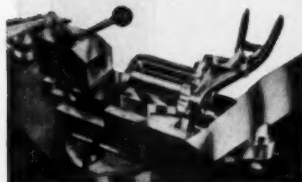
See Lehigh **TRACER-TOOL**  
**DEMONSTRATED**  
**ASTE INDUSTRIAL EXPOSITION**  
Booth No. 1355

AIR CONTROL DIVISION OF  
**Lehigh Foundries, Inc.**

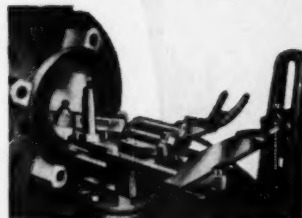
1502 LENIH DRIVE, EASTON, PA.

West Coast Dist.- CAMPBELL CONTOUR ATTACHMENT COMPANY, 1320 W. Esther St., Long Beach, Calif.

MFGRS. OF AIR VALVES • CYLINDERS • HOISTS • MOTORS • CASTINGS • VENDING MACHINES • COMMERCIAL REFRIGERATION SYSTEMS



**O.D. CONTOUR TURNING** — & tapering. Unlimited radii.

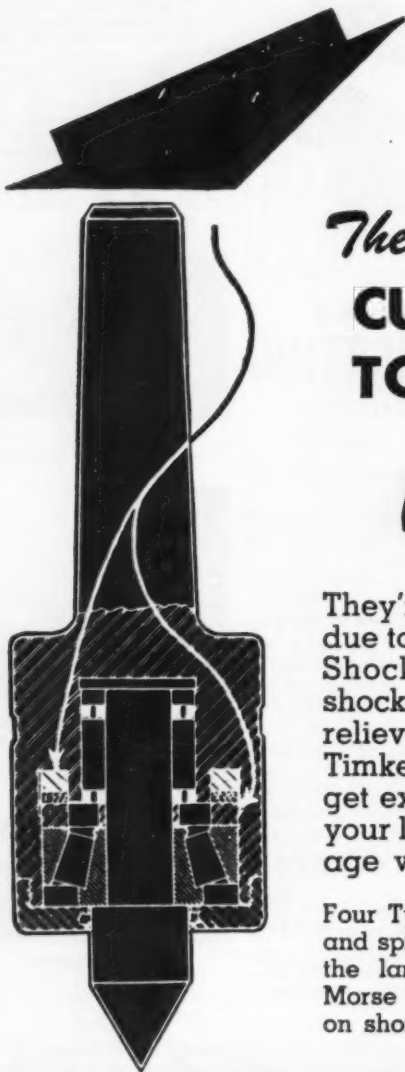


**CONTOUR FACING** — on any engine or turret lathe.



**I.D. BORING** — consisting of various blended radii as well as 90° steps.





## *These Shock Absorbers* **CUT** **TOOL BREAKAGE**

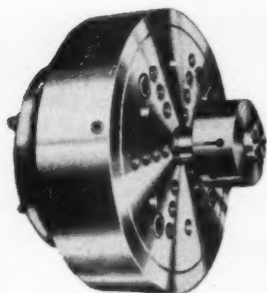
*Glenzer*  
**PRECISION CENTERS**

They're cushioned to absorb shock due to heat expansion in machining. Shock breaks tools. Soak up the shock and you reduce tool breakage, relieve excessive pressure on the Timken annular roller bearings. You get extra dividends in longer life for your live centers and less work spoilage with Glenzer Live Centers.

Four Types — Taper shank, slip-over, slip-in and spindle. For smallest tool room lathes to the largest railroad shop equipment. All Morse Tapers in stock. Other types to order on short notice.

THE J. C. **GLENZER** CO. Inc.

1546 E. NINE MILE ROAD, DETROIT 20, MICH.

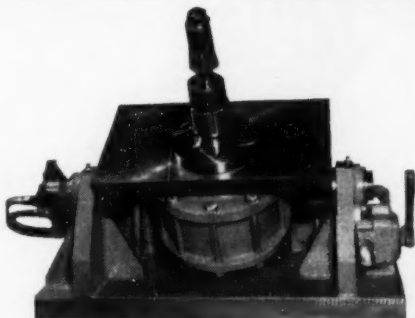


## CHUCKS

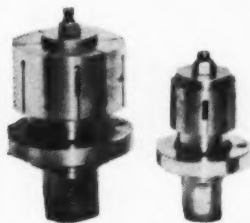
Parts that can be chucked internally can be chucked faster and machined more accurately on SPEEDGRIP Precision Internal Chucks than by external chucking methods. Standard SPEEDGRIP CHUCKS are made in various sizes. They cover a range of bores from one half inch to eleven inches and can usually be purchased right from stock. SPEEDGRIP engineers are at your service to design and build any standard or special chucking equipment you may require.

## FIXTURES

SPEEDGRIP fixtures are designed and built for use on single or multiple spindle boring machines; milling machines; drill presses, etc. At the right is shown a tilting type fixture that is used on a No. 150 Baker Drill. Two air cylinders are used for tilting and clamping the work. SPEEDGRIP fixtures hold work-pieces securely, position them accurately and usually reduce loading and unloading time.



## MANDRELS



All SPEEDGRIP Mandrels are made from high grade Alloy Steel, heat treated and ground to precision gages. Standard Mandrels are made in ten different nose sizes and use the same bushings as standard chucks. SPEEDGRIP engineers also design and build many special mandrels and welcome an opportunity to help solve your internal chucking problems where special equipment is required.

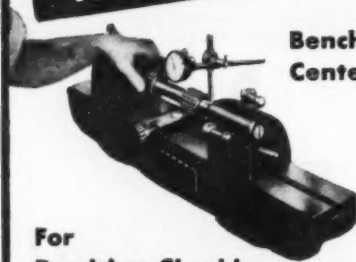
# **SPEEDGRIP CHUCK**

**820 NORTH WARD STREET  
ELKHART, INDIANA**



# Time Saving Production and Checking Accessories

Here are three Sundstrand accessories that may prove helpful in your work. A wide range of bench centers and balancing tools are available for checking purposes. The automatic index base has proved a sound addition to many metal working machines. Write for further information.



**Bench  
Centers**

## For Precision Checking

Simplify assembly, lower spoilage and get better production from this modern Sundstrand Bench Center. You'll check work between centers easier, faster and within limits of .0001" on this improved Sundstrand Bench Center.

### COMPLETE RANGE AS FOLLOWS:

6" x 18"	12" x 48"	24" x 48"
6" x 36"	12" x 60"	24" x 60"
12" x 36"	12" x 72"	24" x 72"

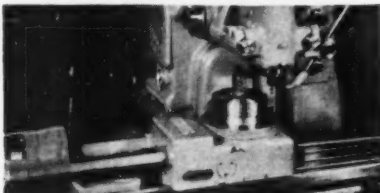
## Balancing Tools For Small Medium or Large Work



Sundstrand offers a complete line of balancing tools which will save their cost quickly on truing or balancing operations. Accurately sensitive and durable, they provide a simple, reliable means

for checking the balance of parts like gears shafts, fly wheels, pulleys, etc. Standard swing sizes range from 21 inches up to any swing desired. Length between standards ranges from 20 inches to any length desired.

## Automatic Index Base For More Production



This automatic index base is designed so there is no strain against the index plunger during the cut. The base is locked by powerful clamping so that accuracy of index is not affected by heavy cuts.

In many cases, the addition of this Automatic index base has increased milling production enough to eliminate need for the purchase of additional machinery. It may be the answer to your milling production requirements. Call in a Sundstrand engineer. There is no obligation for this.

## Free Data

Complete specifications are available on these three time saving accessories. Write for your copies today. Ask for bulletins 443.



**SUNDSTRAND MACHINE TOOL CO.**

2535 ELEVENTH ST. ROCKFORD, ILLINOIS, U.S.A.



# SAVE TIME

with HARTFORD SPECIAL

## SUPER-SPACERS



**HARTFORD**  
*Special*

THE HARTFORD SPECIAL MACHINERY CO., HARTFORD 12, CONN.

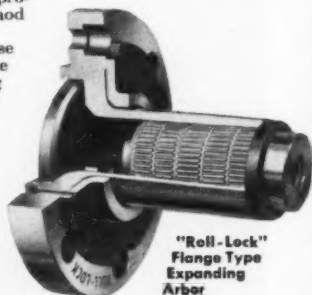
# How **GREENLEE** uses

**Powerful Scully-Jones "Roll-Lock" tools  
permit faster, more accurate chucking!**

This Greenlee Transfer Unit is equipped with 16 Scully-Jones "Roll-Lock" Chucks, providing a completely different, advanced method for driving reamers.

Utilizing the elastic properties of metal, these chucks compress evenly and powerfully on the tool shank... provide an accurate, centering *shrink-fit* free of clearance or play. Actuation and release are fast and easy. Operator merely twists actuating ring to produce the powerful "Roll-Lock" wedging action on chuck body. There are no accessory tools or time-wasting operations. Positive, rigid holding permits use of heavy feeds and speeds.

Accurate chucking... often within .0001" T.I.R. ... improves finish and accuracy, prolongs tool life by eliminating vibration and runout. Standard or special "Roll-Lock" Arbors, Mandrels, and Chucks... for holding parts or tools... improve production machining and inspection operations many ways. Call your Scully-Jones representative or distributor—factory-trained "Precision Tool and Work Holding Specialist"—for complete information and service.



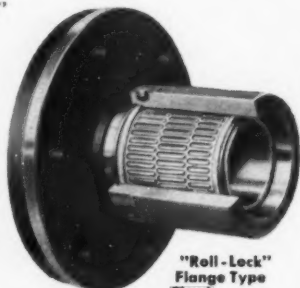
**"Roll-Lock"  
Flange Type  
Expanding  
Arbor**

**Reduce loading, unloading or setup time**—Simple method of chucking eliminates tapered mandrels, hammering, lead plates, and arbor presses.

**Speed turning and grinding operations**—Rigid, powerful holding action permits heavy feeds and high speeds.

**Improve work finish and reduce rejects**—Provide chucking accuracy difficult to obtain by any other method.

**Simplify and speed operation**—Work is always easy to load in same position due to simple, accurate method of locating and chucking.



**"Roll-Lock"  
Flange Type  
Chuck**

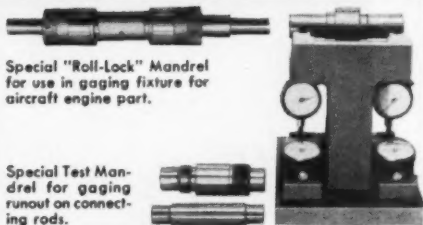
## FOR PRECISION WORK AND TOOL HOLDING



**Special "Roll-Lock" Centering Plug** holds and drives gun barrels for finishing operations.

Use them for turning, grinding, drilling, boring, reaming and lapping.

## FOR GAGING AND INSPECTION OPERATIONS



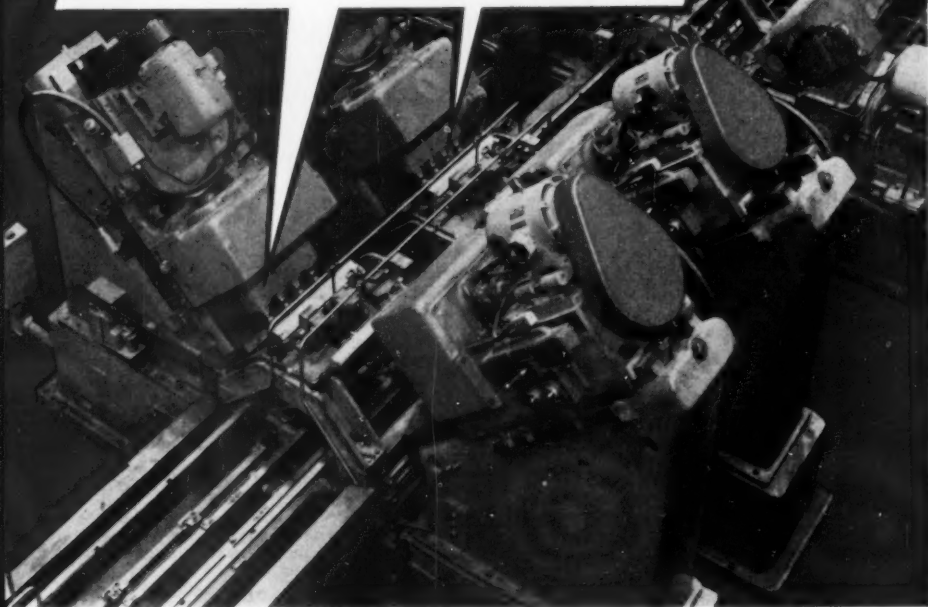
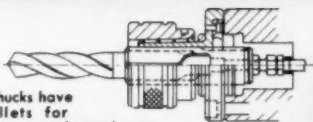
**Special "Roll-Lock" Mandrel** for use in gaging fixture for aircraft engine part.

**Special Test Mandrel** for gaging runout on connecting rods.

# newest chuck development

**Compact "Roll-Lock"**  
Chucks bolt to face plates on four multiple-spindle reaming stations of Greenlee Transfer Unit. Accurate chucking assures straight, round holes. Fast, easy tool changes minimize downtime.

Chucks have collets for various tools and provision for presetting.



**SCULLY  
JONES**  
*Precision Holding*  
FOR HOLDING PRECISION

Scully-Jones and Company  
1907 South Rockwell Street, Chicago 8, Illinois

## BULLETIN!

52 pages of new, profit-boosting methods for chucking parts and tools.

Gentlemen: I'm interested in learning more about Scully-Jones "Roll-Lock" Tools...

- ☐ Please send Bulletin No. 17-50  
☐ Have representative call

Name

Company

Address  State





HERMAN CHARNEY SETS UP J & S WHEEL DRESSER FOR .050 CONCAVE DRESSING

## Saves hours by setting angles in seconds, radii in minutes

**A typical job made easier with a J & S "Fluidmotion" Wheel Dresser**

Here's a wheel dressing job which calls for 13 angles, 4 radii, 7 flats. Ordinarily you might expect to spend from 5 to 30 minutes for each setting. With a J & S "Fluidmotion" Wheel Dresser, tool grinder Herman Charney made *all 24* settings in just 21 minutes.

### **Time-saving Features**

An unusual case? No — it's typical of the speed and ease of operating a J & S Wheel Dresser. Setting 2 angles with a "Fluidmotion" Dresser, for example, takes only 10 seconds. Setting a radius takes only 2-3 minutes.

Note just *how* easy it is to operate a J & S Wheel Dresser. All you need is a micrometer and a simple hex wrench. You can forget about gage blocks, height gages and master gage settings. No need to bother either with parallel bars, surface plates or dial indicators.

With the "Fluidmotion" Dresser, you can also dress two angles tangent to a radius in one continuous motion. After dressing the angles, the diamond automatically returns to center.

### **Accurate to 0.0001"**

Accuracy? You can make concave and convex contours at a full 180 degrees with a guaranteed accuracy of 0.0001". J & S dressed forms, too, are always clean and precise. Angles and radii *flow* into each other, free of tool or chatter marks.

These are some of the benefits you get when you use a J & S "Fluidmotion" Wheel Dresser. A variety of models are available for dressing wheels up to 24" in diameter. Construction in all cases is of high-carbon high-chrome steels.

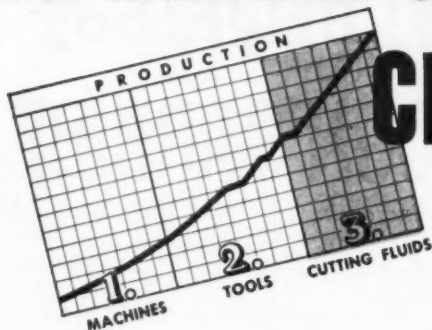
*Write for complete information today*



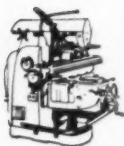
WHEEL DRESSERS • JAW CLAMPS • PRECISION VISES • SINE BARS • DOWN-HOLDING DEVICES

647 W. MT. PLEASANT AVENUE, LIVINGSTON, NEW JERSEY

# For maximum efficiency...



# CHECK ALL THREE!



## 1 MACHINES

Several machines in your plant may be capable of performing the job at hand. You may consider two or three machines or even make test runs before deciding which is best. DO YOU ALSO CHECK SEVERAL CUTTING FLUIDS?



## 2 TOOLS

Carbon steel tools may do the job—but you don't hesitate to try high speed steel or carbide tools if there is a chance they can do better. DO YOU ALSO CHECK SEVERAL CUTTING FLUIDS?



## 3 CUTTING FLUIDS

CHECK SHEAR-SPEED Soluble Oil against your present cutting fluids and convince yourself of its amazing advantages and versatility... a multi-viscosity blend for widest range of application. It's SEVERAL CUTTING FLUIDS ALL IN ONE. Avoids gumming characteristics of paraffin oils and corrosion or staining from sulfur and chlorine additives. Sold only on a satisfaction guaranteed test basis. Write today for Bulletin SO-53 and price list.

### NEW COOLANT-LUBRICANT BOOSTS TOOL LIFE 60-80% IN PRODUCTION TESTS

Impartial tests of three cutting fluids conducted in the plant of a large auto manufacturer showed an increase in tool life of 60.3% and 81.6% for the new SHEAR-SPEED Soluble Oil over two other highly rated cutting fluids. Improved surface finish and reduced down-time were clearly demonstrated in the tests with unusually uniform results obtained during all runs with SHEAR-SPEED.

On this high speed hobbing operation turning out automotive gears SHEAR-SPEED Soluble Oil averaged 18% more gears cut per tool grind than the next best cutting fluid, with 35% less tool stock removed in sharpening. All variables including coolant flow, grinding, cutting speed, gear set, etc. were maintained constant during test runs. Lower tool cost and increased production.

**SHEAR SPEED**  
CHEMICAL PRODUCTS



7125 E. McNICHOLS RD. A Division of Michigan Tool Co. DETROIT 12, MICH.



Now **HERE'S** a **SENSATIONAL** Expansion!

# **NEW! Brightboy** with **SILICON CARBIDE**

*Beat increasing competition with Brightboy's broader, better methods that really count—with finer, faster **BURRING, CLEANING, FINISHING, POLISHING, IN ONE OPERATION!** Achieve finishing time savings up to 50%.*

NOW, wherever requirements dictate, you have available a new rubber-cushioned Brightboy compounded with silicon carbide abrasives for countless time-saving applications. This new Brightboy grouping is our answer to the growing demand from finishing experts who appreciate and want Brightboy textures which incorporate the working characteristics of silicon carbides. Accordingly ...

**THE COMPLETE BRIGHTBOY LINE IS NOW COMPOUNDED WITH EITHER ALUMINUM OXIDE OR SILICON CARBIDE GRAIN**

AND—Brightboy is now available in a wide variety of grain sizes ranging from *extra coarse to extra fine*, in soft, firm and tough rubber binders.

Thus Brightboy widens your finishing horizon almost unbelievably . . . cuts your finishing time costs substantially! Rubber-cushioning renders the complete Brightboy line extensive in its adaptability—creates time-and-work-saving applications far beyond the limits of other finishing methods.

WHEELS, STICKS,  
RODS, BLOCKS  
for machine  
and manual  
operations.



**TRY A TEST!** Get complete details, and the Brightboy Catalog-Manual from your dealer. Write us on any problem where finishing is involved.



**BRIGHTBOY INDUSTRIAL DIVISION**  
**WELDON ROBERTS RUBBER CO.**  
95 No. 13th St. • Newark 7, N. J.

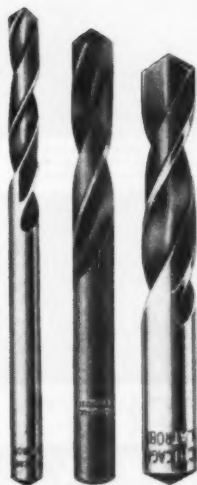
*America's Pioneer Manufacturer of  
Rubber-Bonded Abrasives*



From the  
**MITE**

to the  
**MIGHTY**

CHICAGO-LATROBE'S  
complete line of  
**DOUBLE-CIRCLE TOOLS**  
gives greater cutting mileage



Double-Circle Drills run all the way from watchmaker's .0059 diameter (too small to illustrate in its true size) to a giant 3½" or larger, diameter drill. These are the extremes. In between are literally hundreds of the more commonly called for sizes in the exact design you require.

Each one is the finest possible tool of its type. Starting with top-quality pre-tested steels, they are produced under a precision control system that insures a perfect drill every time. Order Double-Circle and watch their fine quality give you "greater cutting mileage"... keep your tool costs down. Your distributor can supply you.

**YOU'LL GET ← QUICK SERVICE →**

**FROM A CHICAGO-LATROBE DISTRIBUTOR**



**CHICAGO-LATROBE**

**DRILLS • REAMERS • COUNTERSINKS • COUNTERBORES • CARBIDE TOOLS • SPECIAL TOOLS**



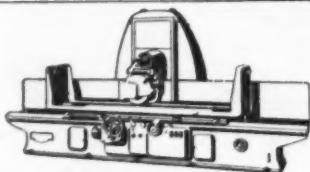
# MATTISON GRINDERS

*If its a Flat Surface to Grind  
There's a Mattison to Grind it.*

• Mattison now is in a position to work with you on all your surface, face and disc grinding problems. These machines are made in various types to handle a wide range of work. Experienced fixture engineers are available to give you best production efficiency with Mattison Machines.

For any flat grinding, ask for our recommendations on the proper method and machine for your job. No obligation, of course.

For catalog on all machines, ask for free copy of general bulletin.



Precision Surface Grinders  
Horizontal Spindle



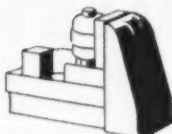
Disc Grinders,  
Double Spindle Type



Vertical Spindle  
Disc Grinders



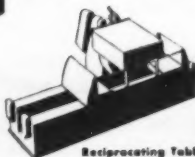
Plane Grinders,  
Rotary Table Type



Rotary Table  
Surface Grinders



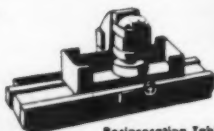
Automatic Rotary  
Surface Grinders



Reciprocating Table  
Face Grinders



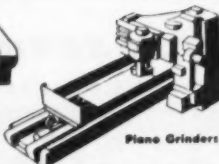
Disc Grinders,  
Single Spindle Type



Reciprocating Table  
Surface Grinders  
Vertical Spindle



Face Grinders,  
Traveling Wheel



Plane Grinders

## MATTISON

ROCKFORD • ILLINOIS

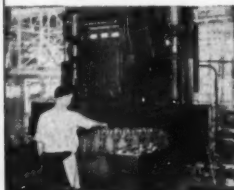
## MACHINE WORKS



40 hours before — now 4 hours. Pump case ground on Mattison Horizontal Spindle Precision Surface Grinder



320 surfaces of cast iron compression heads per hour, removing 1/32" stock with Mattison No. 24 Rotary Surface Grinder

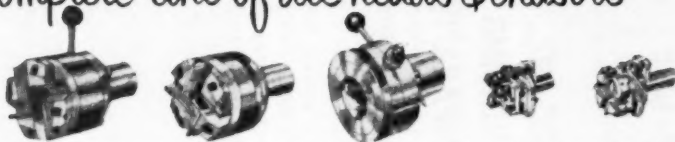


900 connecting rods per hour, using 40 silicon nitride to finish grind crank and wrist pin end of assembled rod with Mattison No. 72 Grinder



Shows variety of work run on Mattison Face Grinders

# Jones & Lamson offers... a complete line of die heads & chasers



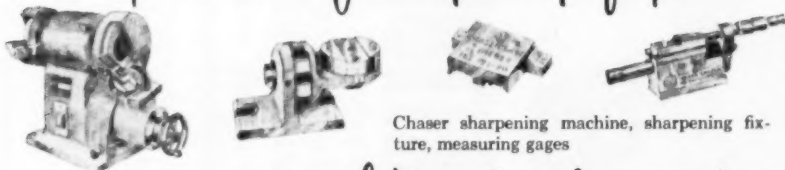
Automatic opening tangent stationary and revolving types, radial stationary type, B&S and small turret lathe types

# a complete line of accessories



External and internal trip attachments, drill press adapter, floating holders

# a complete line of sharpening equipment

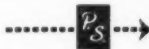


Chaser sharpening machine, sharpening fixture, measuring gages

# a complete engineering service



World's newest, most modern thread tool plant. Complete literature for all J&L thread tool products



J&L Automatic Opening Die Heads and Chasers assure: low initial cost — ease of operation — controlled resharpener — use of carbide where applicable. Class III threads guaranteed. This means important savings regardless of your tolerance requirements. Write to Dept. 710 for complete information.

## JONES & LAMSON

JONES & LAMSON MACHINE CO., 520 Clinton St., Dept. 710, Springfield, Vt., U.S.A.



Machine Tool Craftsmen  
Since 1835

THREAD TOOL DIV.

WHAT DOES FIRTH STERLING OFFER YOU?

(ANSWER NUMBER 3)

# UNBIASED RECOMMENDATIONS

Producing *tools and tool materials* for the cutting, shaping and forming of metals is *major business* at Firth Sterling. Hence, capacity to serve you best necessarily embraces "full line tooling" . . . high speed tool steels *and* tungsten carbides, or *both* as needed.

So, you can count on *unbiased* tooling recommendations when you make Firth Sterling your *one* source of supply for *complete* shop tooling needs. We have no axes to grind!

What are the advantages to you?

1. An integrated tooling program that saves you money by matching tools to applications, without temptation to apply more expensive tools than may be necessary.
2. Improved production from wider selections. A choice

C.H.Q. DIE STEEL

*hangs up...* ANOTHER  
COLD HEADING RECORD  
IN COMPARATIVE TESTS!

A nationally known fastener manufacturer\* recently made comparative tests of solid steel cold heading dies, under carefully controlled conditions, producing  $\frac{3}{8}$ " square head machine bolts from 1020 steel on a Waterbury Farrel double stroke automatic.

Firth Sterling C.H.Q. came off with top honors and the highest production ever



\* C. H. Q. solid die after 192,000 runs.

to apply more expensive tools than may be necessary.

2. Improved production from wider selections. A choice of 97 different grades of high speed steels and tool and die steels *and* a dozen grades of carbides in everything from die nibs to an almost unlimited selection of standard and special carbide tools and tips.
  3. The purchasing economies inherent to buying from one source of supply instead of from several.
  4. The finest "packaged" tool line today for easy handling, stocking, identification in the tool crib, and inventory control.
  5. The consistently high quality assured by 64 years of leadership in development of special purpose steels and 24 years of pioneering in carbide and powder metallurgy applications.
- Makes sense, doesn't it? Call a Firth Sterling representative.

***Firth Sterling Stands for Metallurgical Achievement—Past, Present, Future***

**Visit Booth 120—A.S.T.E. Show**

1-3

# ***Firth Sterling***

—INC—

**GENERAL OFFICES: 3113 FORBES ST., PITTSBURGH 30, PA.  
OFFICES\* AND WAREHOUSES: BIRMINGHAM\* CHICAGO CLEVELAND DAYTON\* DETROIT HARTFORD  
HOUSTON\* LOS ANGELES NEW YORK\* PHILADELPHIA\* PITTSBURGH\* WASHINGTON\* WESTFIELD, N.J.\***

\*C. H. Q. solid die after 192,000 run.

obtained by this manufacturer from any steel die . . . 192,045 both ends. (78,860 one end, 59 Rockwell C; 113,185 other end, 61 Rockwell C). Standard competitive carbon steel dies produced only 50,000—60,000 both ends and ultimately failed by cracking axially. The C.H.Q. die wore oversize but longitudinally etched



Longitudinally etched section reveals no cracks.

section revealed not even a hair line crack.

Ask for technical literature on C.H.Q.—or a Firth Sterling representative will discuss your die problems. His recommendations are unbiased . . . we make and sell *both* steel *and* carbide for every tooling need.

\* (name on request)

P-10

## **PRODUCTS OF FIRTH STERLING METALLURGY**

High Speed Steels

Tool & Die Steels

Stainless Specialties

High Temperature Alloys



Sintered Tungsten Carbides\*

Firth Heavy Metal

Chromium Carbides

High Temperature Ceramics

# Clamping Device on Abrasive Cut-off Saw

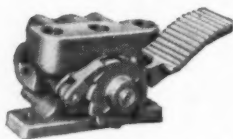
*Operated by*  
**N O P A K**  
MODEL E CYLINDER



This efficient clamping device was developed by a Canadian distributor of industrial supplies, to speed up and simplify the cross-cutting of pipe, rod stock, angle iron and other shapes. A NOPAK 2" x 6" Model "E" Cylinder, suspended from the top of an "A" frame, supplies the downward pushing power which holds the stock firmly in place while the abrasive saw does the cutting quickly, squarely and accurately.

Cylinder is actuated by a NOPAK Model "F" Foot Operated Valve which leaves operator's hands free . . . and enables him to move about between cuts until he again steps on foot lever to release clamp. Slow, manual manipulation of clamps or vises is completely eliminated, valuable time and effort is saved.

NOPAK Cylinders and Valves are used throughout industry, in thousands of similar applications, to accelerate production, reduce costs, minimize fatigue. Ask your NOPAK representative to show you the NOPAK Application Manual.



NOPAK Model "F" Foot Valve

## GALLAND-HENNING NOPAK DIVISION

2754 SOUTH 31ST STREET

MILWAUKEE 46, WISCONSIN

Refer to Sweet's File for  
Product Designers or write  
for Bulletin SW-2.

Representatives  
in Principal Cities

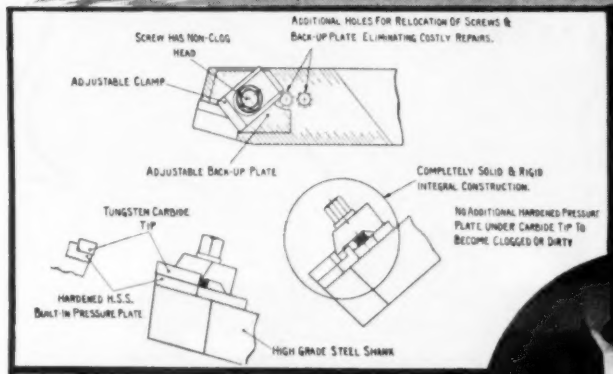
**N O P A K**  
**VALVES AND CYLINDERS**  
**DESIGNED for AIR and HYDRAULIC SERVICE**

A 7878-1/2-1A

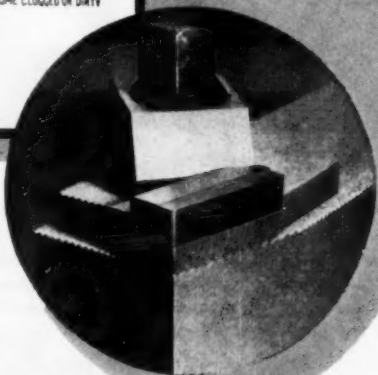
# LARBIDE

PAT. PENDING

## THE NEW NAME FOR CLAMPED-ON CARBIDE TOOLS



1. The first commercially proven "pocket-less" clamped-on carbide tool
2. Infinite adjustment of tip
3. Special "non-deform" hold down screw
4. Repairs for "pennies", eliminating welding & milling or grinding of conventional "pocket-type" tool
5. Hardened H.S.S. shim support built into composite "Larbide" insert
6. No extraneous "shims" or "hardened pads" to collect dirt or weaken "front-end" tool construction
7. High alloy, hardened steel construction throughout
8. Introduces and "proves" new carbide tool designs and concepts
9. "Neutral Angle" construction permits economical "ground-in" angles on tip for various materials
10. "Larbide" is the only "proven-by-punishment" carbide clamped-on tool to make clamped-on tools competitive to brazed tools
11. Utilizes less "grams" of carbide at a lower price, to remove more "pounds" of metal
12. A completely ground and ready to use carbide insert at slightly more than a raw piece of carbide
13. Eliminates "special" and "expensive" special carbide tips for large clamped-on tools
14. "Unique" construction permits uninterrupted chip flow



"TRY THEM YOURSELF—Issue 'trial' purchase order specifying tool number and we will forward tools for you to try in your plant."

### --- RETURN COUPON ---

**MESSINGER TOOL WORKS**

**6025 Belfield Ave.**

**Philadelphia 44, Pa.**

Gentlemen: Please forward brochure and price list of "CARBIDE" tools

Name .....

Title .....

Company .....

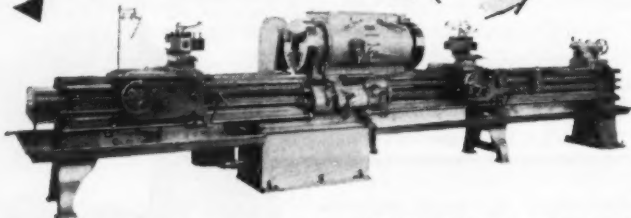
Address .....

**MESSINGER TOOL WORKS**  
**6025 Belfield Ave.**  
**Philadelphia 44, Pa.**  
**VI. 8-1700**



**WORK FROM**  
*Both Ends* with...  
**LEHMANN**  
**LARGE HOLE**  
**DOUBLE-ENDER**  
**HYDRATROL LATHES**

18" x 13 foot x 6 foot Double-End Hydratrol, hollow spindle, Engine Lathe; with  $7\frac{1}{8}$ " hole in spindle; having hardened ways and a 10" long spindle extension. Equipped with carriages on both beds. Arranged for power feed and thread cutting. Tailstock for additional work between centers.



Double-End Hydratrol Lathes are built in sizes from 18" with holes up to  $7\frac{1}{4}$ " to larger sizes with holes to suit the job. Double-End operations avoid necessity for resetting the work, and insure relative concentricity of boring and turning operations and squareness of faces at both ends.

50" swing—50 foot length, 19" hole in spindle. 24" Hexagon Turret on carriage with profile bar for profile boring and grinding. Retractable diamond profile wheel dresser. Weight 72,000 lbs.



**LEHMANN**  
**MACHINE COMPANY**

GRAND at CHOUTEAU • ST. LOUIS 2, MO.

DIVISION OF NOVO ENGINE CO.

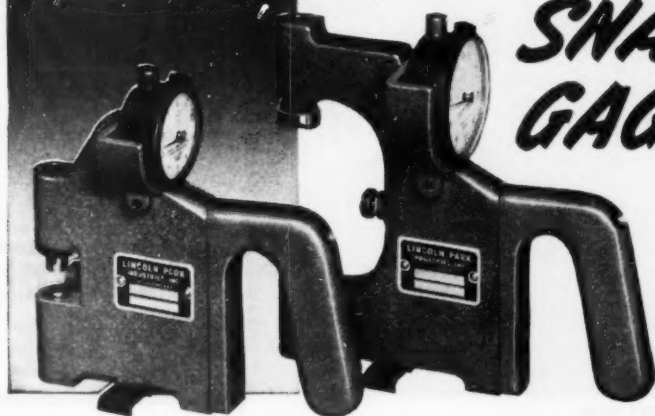
Boring Tools  
 by Lehmann



A

**NEW**

LINE OF

**DIAL  
SNAP  
GAGES**

Again, Lincoln Park Industries steps forward with a new development in snap gages that means further help to your production. Note these real advantages:

**SIMPLIFIED DESIGN & CONSTRUCTION**—Lincoln Park Dial Snap Gages are designed to give a direct reading from the measuring anvil to indicator. There are no bearings, levers or cams to get out of adjustment.

**PRECISION ADJUSTMENTS**—By means of its fine pitch ground thread screw attachment, the upper anvil can be adjusted within a  $\frac{1}{4}$ " range.

**WEAR-RESISTANT ANVILS**—The parallel anvils are supplied either carbide tipped or Carb-o-Plated.

**SHOCKPROOF**—Even when Lincoln Park Dial Snap Gages are used by inexperienced operators, there is no possibility of damage by accidental shock. The indicators themselves are encased in a housing to protect them from damage.

**CHOICE OF INDICATORS**—Any A.G.D. size indicator can be used.

**LONG LIFE**—Because these gages have a minimum of parts to wear or be replaced, maintenance is negligible and long, trouble-free operation is assured.

*Lincoln Park*

1719 FERRIS AVENUE

**INDUSTRIES, INC.**

• LINCOLN PARK 25, MICHIGAN

DESIGNERS AND MANUFACTURERS OF: SPECIAL AND STANDARD CARBIDE CHROME PLATED AND STEEL GAGES  
CARBIDE ROTARY FILES • ALSO FACILITIES AND SKILLED PERSONNEL AVAILABLE FOR PRECISION PARTS PRODUCTION

THE PLUS IN PRECISION





# NEW

## CLAUSING 5300 TURRET LATHE

### biggest PLUS in lathe history!

The massive new 12" Clausing "5300" series precision lathe equipped with lever type collet chuck, lever type carriage turret and bed turret is the biggest PLUS in the 1" collet capacity hand turret lathe field. For the rapid machining of duplicate parts, on short run jobs and hand screw machine work, it is unexcelled. Ideal for second operations . . . perfect for experimental and research development work.

Bed turret has 6 stations for 1" tool shanks. Carriage turret provides for five more operations. Precision ground, forged steel headstock spindle turns on widely spaced Timken "Zero-Precision" tapered roller bearings and has 1" collet capacity and 1 3/8" hole.

Other Accuracy Plus and Capacity Plus features include new heavy-duty headstock, massive bed and precision ground Vee and flat ways, built-in countershaft with friction clutch and brake for instant starts and stops of spindle without stopping motor, automatic double-walled apron with splash lubrication, 12 spindle speeds, 29 to 1300 RPM, quick change mechanism, 48 power feeds.

The Clausing "5300" turret lathe equips you for test runs or round the clock production at lowest cost. See it at your nearest Clausing dealer's!

WRITE FOR ILLUSTRATED LITERATURE TODAY!



**CLAUSING DIVISION**  
*Atlas Press Company*

1-107 N. PITCHER ST., KALAMAZOO, MICH.



**HEAVY DUTY BED TURRET**  
Massive gray-iron bed and ram castings . . . 3/4" x 3/4" precision ground ways . . . key parts hardened steel precision ground . . . turret head, 5 1/2" hex, 6 stations, 1" tool hole . . . ram, 16 1/4" long . . . weight 130 lb.



**CARRIAGE TURRET**  
This assembly replaces the standard carriage . . . four way tool post turret is released by convenient lock handle and rotated to any one of four operating positions, automatically indexed. Operates either by lever or cross feed screw.

# CUT COSTS

*with the Original Mead*

## MIDGET AIR CLAMP

*(Spring Return Air Cylinder)*

In assembly jigs and other multiple applications, this new, low cost pressure unit saves countless man-hours. As a work-ejector in many fixtures, it is unexcelled.

### Advantages over mechanical clamps

**1 ALL AIR CLAMPS** in any set-up can be operated by a single master valve—the “lock-up” and release of assemblies is instantaneous.

**2 MAY BE INSTALLED IN CRAMPED** corners difficult to reach with bulky mechanical clamps. Mead Midget is the most compact air cylinder, for its power, on the market.

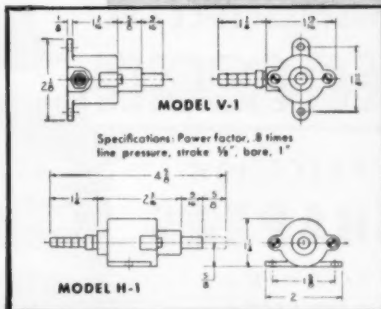
**3 EQUAL RAM PRESSURE AT ANY POINT** along stroke, making special, delicate adjustments unnecessary.

**4 INDEPENDENT GROUP CONTROL.** Any desired group of “Midgets” can be controlled independently of any other group in an assembly—as where primary members of the fixtures must be locked up before the secondary members.

**5 FACILITATES DELICATE DRILL OPERATIONS.** Air Clamps actuated by foot



Only  
**\$3.95**  
EITHER  
STYLE  
(\$40.00 Per Dozen)



control valves leave operator's hands free to handle the work pieces.

*Send for all the interesting facts  
on these time-tested, superior  
Midget Air Clamps.*

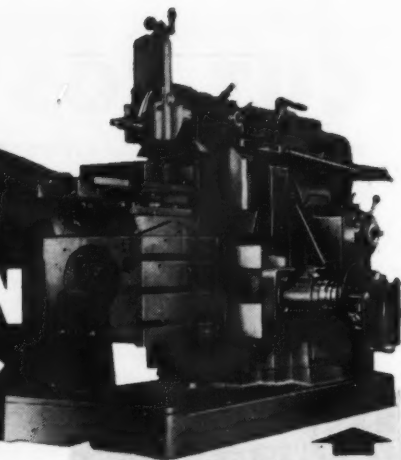


## MEAD SPECIALTIES COMPANY

4114 North Knox Avenue,  
Dept. YA 44, Chicago 41, Ill.



**"TODAY...IT'S  
PRODUCTION  
THAT COUNTS"**

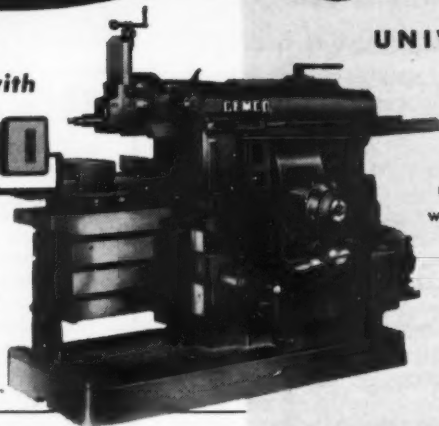


... BEAT COSTLY  
OBSOLESCENCE with

**GEMCO**

## PRECISION SHAPERS

SAVE TIME...  
SAVE LABOR...



### UNIVERSAL TYPE

For tool and  
die work and  
general  
machine shop  
work requiring  
frequent  
changes and  
angular set-  
tings. Avail-  
able in sizes  
from 16" to  
36" stroke.

### PRODUCTION TYPE

For general machine shop use and heavy  
production work. Available in sizes from  
16" to 36" stroke.

LUBRIGARD PROTECTED

### • PLAIN TYPE SHAPERS

...available only in sizes 16" and 20" stroke



**WRITE FOR BULLETIN**

LUBRIGARD PROTECTED

**GEMCO**  
**SHAPER Company**

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ST. LOUIS 16, MO.

PRECISION MACHINERY SINCE 1927

# THREE BROACH USERS TELL WHY

## INDUSTRIAL POWER...

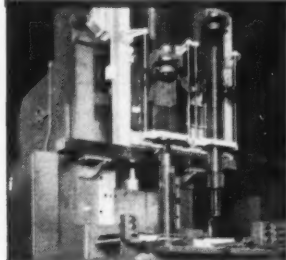
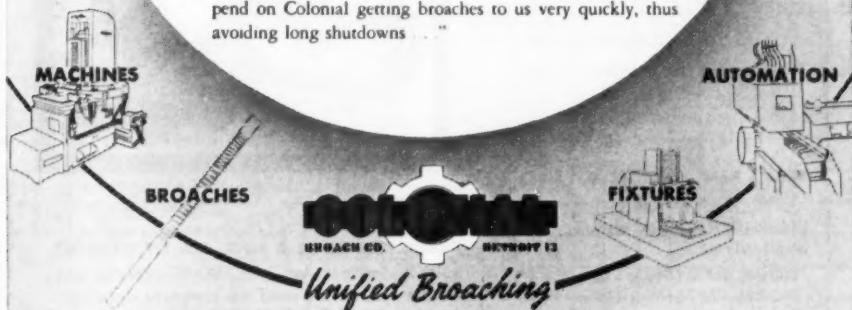
... "We like Colonial broaches because of their accuracy, dependability, and service rendered by the company and their representatives."

## ELECTRONICS...

... "It has been our experience that Colonial broaches have given us most satisfactory results. Quality, workmanship and tolerances furnished on these broaches are a definite asset to our company."

## COAL MINING EQUIPMENT...

... We are well satisfied with the performance of Colonial broaches in regard to tool life, low maintenance, and close tolerances, which they must hold. A big factor is that in the event of a rush or a break-down job, we have learned to depend on Colonial getting broaches to us very quickly, thus avoiding long shutdowns."



## NO BROACH HANDLING - $\frac{1}{2}$ the Work Handling

A big gain in efficiency as well as a reduction in cost results when there is no broach handling between passes in the two-step broaching of large parts. The Colonial dual sliding broach handling support handles the two broaches automatically and permits two-pass broaching with only one handling of the work piece.

The entire cycle through both broaching passes is automatic on this Colonial 50-ton, 72-inch stroke, pull-down broaching machine.

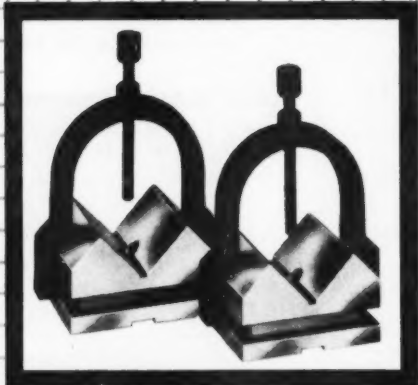
*This is a Colonial Unified Broaching Installation.*

**the perfect mate for all fine  
instruments of standards**

## **UNI-V-BLOCK** by Precision Tool

**ACCURATE TO WITHIN .0002" T.I.R.**

Made of close grain, stabilized Chrome-Moly alloy to guarantee precision results every time. The exclusive new FROZONE process, for hardness and stability, makes *UNI-V-BLOCKS* the closest thing to absolute perfection, on the market today!



Shown here is **MODEL No. 3000**  
(2 $\frac{1}{2}$ " x 3 $\frac{1}{4}$ " x 2 $\frac{1}{8}$ " )

**UNI-V-BLOCKS** are also  
available as:

**MODEL 3000** (4 $\frac{1}{2}$ " x 5 $\frac{1}{8}$ " x 3 $\frac{1}{8}$ " )

**MODEL 1250** (1 $\frac{1}{4}$ " x 1 $\frac{1}{8}$ " x 1 $\frac{1}{8}$ " )

**PRECISION TOOL & MFG. CO. OF ILLINOIS**

1305 S. Laramie Ave., CICERO 50, Illinois MT4

Gentlemen: Please send me complete data on  
the new UNI-V-BLOCKS, at no obligation to me.

NAME \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

ZONE \_\_\_\_\_

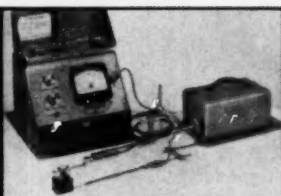
STATE \_\_\_\_\_

**FREE! WRITE NOW FOR MORE  
INFORMATION!**

**PRECISION TOOL & MFG. CO. OF ILLINOIS**

1305 S. Laramie Ave., CICERO 50, Illinois





### **SURFINDICATOR\* meets every surface measurement problem**

The standard pickup for the SURFINDICATOR is hand operated, permits measurement of virtually all shapes, from  $\frac{1}{16}$ " O.D. to  $\frac{1}{4}$ " I.D. The new accessories shown above—motor drive and small bore adapter—extend the usefulness of the instrument. Motor drive speeds inspection where large numbers of identical parts are involved. Adapter permits measurements in very small diameters—as small as  $\frac{1}{16}$ " I.D.—and other limited areas.

\*Trade Mark

## *See how easy it is to measure **SURFACE ROUGHNESS***

Time-consuming laboratory setups to determine surface roughness are now a thing of the past. With the Brush SURFINDICATOR\* you can check surface roughness instantly—anywhere—even when the part is mounted in a machine tool as shown above.

The new ease of measuring surface roughness permits you to control this production variable—which affects machining costs, appear-

ance, friction, wear, product life and many other characteristics. Finish can be specified in blueprints and quickly checked in the shop. The operator simply guides the pickup over the surface and reads roughness in micro-inches directly on the meter. No calculations are required and accuracy of the instrument can be checked at any time against Precision Reference Standards.



**TRY IT YOURSELF!** Write for a copy of this booklet on Surface Finish Control. Or, ask for a demonstration of the SURFINDICATOR in your plant by a Brush engineering representative. Send coupon now. Brush representatives are located throughout the U. S. In Canada: A. C. Wickman, Limited, Toronto. Brush Electronics Company, Cleveland 14, Ohio.

### **BRUSH ELECTRONICS**

INDUSTRIAL AND RESEARCH INSTRUMENTS  
PIEZO-ELECTRIC MATERIALS • ACOUSTIC DEVICES  
MAGNETIC RECORDING EQUIPMENT  
ULTRASONIC EQUIPMENT



### **COMPANY**

formerly  
The Brush Development Co.  
Brush Electronics Company  
is an operating unit of  
Cleveland Corporation.

Brush Electronics Company, Dept. 1-4

2405 Perkins Avenue, Cleveland 14, Ohio

- ☐ Please send free copy of "Surface Finish Control".
- ☐ Have your nearest representative demonstrate the Surfindicator to me.

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Position .....

Company .....

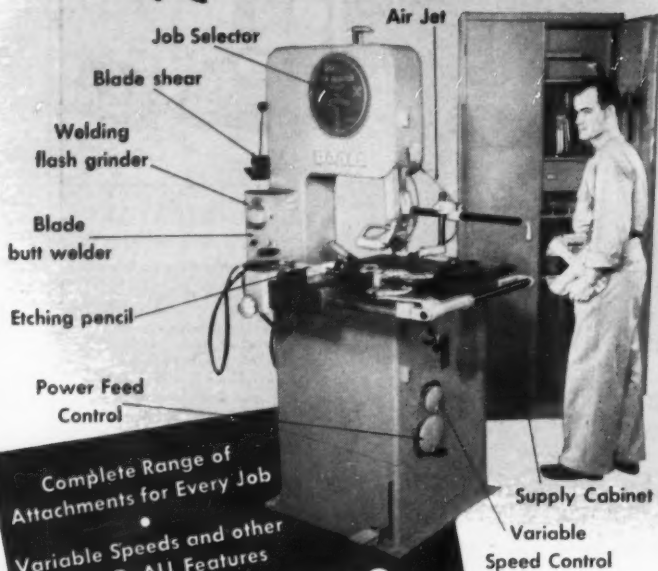
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# DoALL Announces A NEW LOW COST 16"

## Contour Machine



Complete Range of  
Attachments for Every Job  
•  
Variable Speeds and other  
Proven DoALL Features

**As Low as \$540**

### Now Any Plant Can Afford The Advantages of a DoALL!

HERE IS the greatest value ever offered in a 16" x 12" capacity multi-purpose contour saw: for toolroom and light production work . . . automatic power feed . . . fixed and variable speeds of 50 to 5200 blade feet per minute . . . for sawing, friction sawing, filing, polishing, carbide tool finishing.

There are five models, starting at \$540 (less motor, starter and attachments).

*You save money* because you do not have to buy more machine than is needed for the job. *You get more for your money* because

these machines have DoALL quality and DoALL versatility through and through.

And, never before have machines in this size and price class been available

with such a great variety of attachments. There is no class of work within

their range which cannot be handled faster and at lower cost with these new DoALL'S.

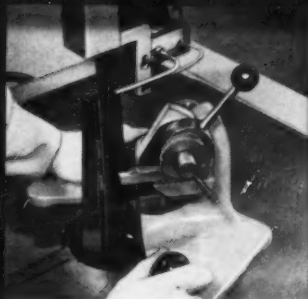
Ask for a demonstration in your own plant. Call your local DoALL Service-Store, or write:

THE DoALL Company, Des Plaines, Ill.



Machine Tools . . . Cutting Tools . . . Gages . . . Supplies

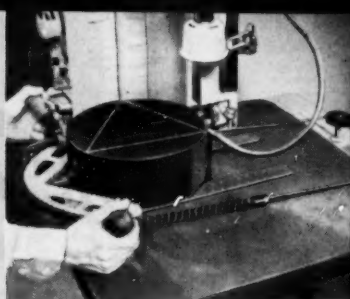
Call  
**DoALL**  
See classified  
phone directory  
for DoALL Store  
nearest you.



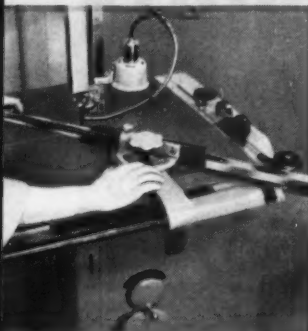
**NEW** carbide tool finishing attachment with abrasive bands!



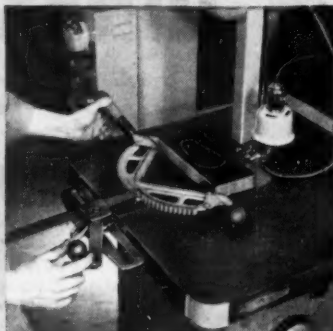
**TILTING** table plus mitering attachment produces compound angles.



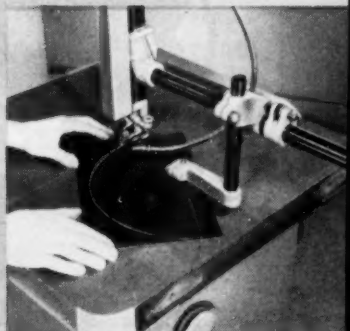
**HEAVY** work slide attachment with power feed reduces fatigue, speeds work.



**CUT-OFF** and mitering attachment provides precision accuracy, speed.



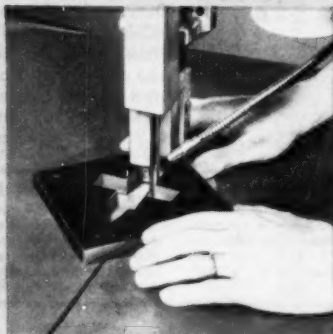
**RATCHET** feed and work-holding jaw for ease and speed.



**DISC** cutting attachment produces perfect circles fast and easily.



**RIP** fence makes fast, precision cutting a simple job.



**FILING**—internal or external with DoALL file bands.



**ELECTRIC** etching pencil for layout work.



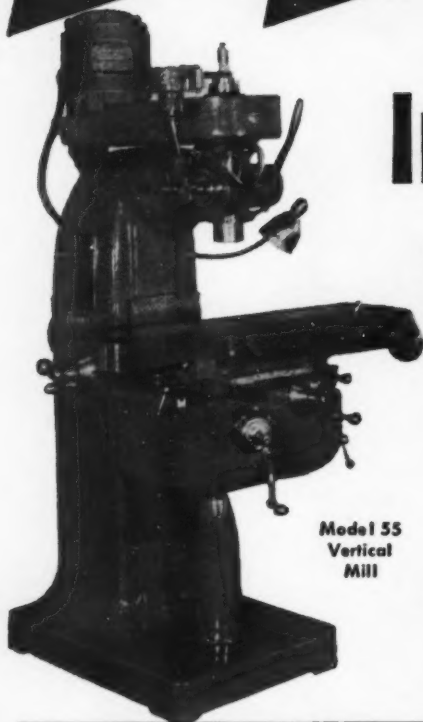
**See this  
New DoALL in Operation**

**at The ASTE Show**  
**Philadelphia—April 26-30**  
**Booth No. 1503**

**CAPACITY +**

**PRECISION +**

**ECONOMY +**



Model 55  
Vertical  
Mill

## Choose **INDEX MILLS** FOR **THESE (+) PLUS** **ADVANTAGES**

You get more when you buy an Index Mill—more quality, superior features. You are not just buying a machine . . . You are investing in equipment that will deliver better results at lower cost. The ideal machines for all your

### **MILLING, BORING and DRILLING JOBS**

Outstanding in this great line is this versatile **MODEL 55 VERTICAL MILL**, designed for those extra capacity jobs often found in tool and die shops; provides increased speed and feed range. Capacity  $\frac{1}{8}$ " to  $1\frac{1}{2}$ " end mills in steel, a table working surface of  $32" \times 9"$  or  $38" \times 9"$ ; overall  $40" \times 9"$  or  $46" \times 9"$ .

#### **MODEL 40 VERTICAL MILL**

For speedy, economical milling. Spindle gives 9 speeds, 125 RPM to 2250 RPM. Easy to operate. Rugged, for every day operation; also used for boring and locating. Capacity  $\frac{1}{8}$ " to 1" end mills in tool steel. Table working surface  $8" \times 26"$ ,  $8" \times 34"$  overall.

#### **MODEL 60 HORIZONTAL MILL**

Simple, efficient, compact, with all operating parts enclosed, yet readily accessible. Unusually low-priced. Designed for the average tool room, yet highly suitable for production shops through its rigidity and low maintenance cost. Standard table  $40" \times 9"$ , larger table optional.

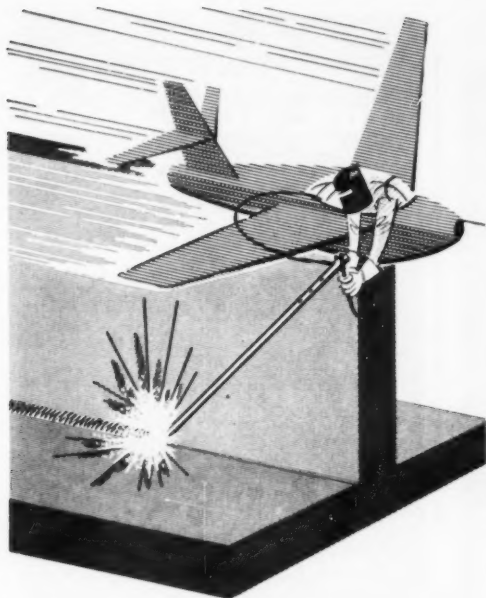
INDEX BUILDS BETTER MILLS . . . WRITE FOR LITERATURE

# **INDEX MACHINE Co.**

540 N. MECHANIC STREET

JACKSON, MICHIGAN

VISIT OUR BOOTH, NO. 1308, A. S. T. E. SHOW, PHILADELPHIA, APRIL 26-30



## HERALDS THE JET AGE IN WELDING TO MEET THE AGE OLD PROBLEM... COSTS

NOW, Lincoln joins powdered metal for the first time with commercial electrodes to utilize the heat of the arc more efficiently. As modern as the Jet itself, JETWELD achieves the fastest hand welding speeds ever accomplished... with new quality standards and ease of welding.

### RESULTS

**1. 30% and higher speeds** on fillet and lap welds... and to new quality standards.

**2. Easy to operate.** A drag electrode, JETWELD has exceptionally stable arc characteristics. There is no coating breakdown. Stub losses are less.

Welders take to JETWELD'S smooth arc action... its improved resistance to arc blow. There is practically no spatter. Bead appearance compares with hidden-arc welds. Welds are self-cleaning.

**3. X-ray quality.** Weld metal made with JETWELD is uniform... of X-ray quality. It is free of undercut with improved impact values at low temperatures. JETWELD is used on higher-carbon steels normally welded with low hydrogen rods... without cracking and without surface holes. Bead shape is flat.

Lincoln's leadership in arc welding is founded on one idea... to produce a better product at lowest cost through incentive operation.

## THE LINCOLN ELECTRIC COMPANY

Dept. 3602

CLEVELAND 17, OHIO

THE WORLD'S LARGEST MANUFACTURER OF ARC WELDING EQUIPMENT

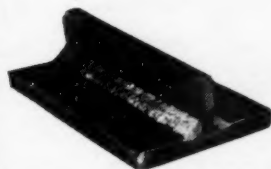


## LINCOLN JETWELD

**NOW! 30% and faster  
welding speed to cut  
your welding costs..  
FOR FILLET AND LAP WELDS**

### "JETWELD" (E-7020)

Designed for fast operation in flat and near-flat positions. Tensile strength (as welded) 80,000 to 90,000 psi. Yield strength (as welded) 65,000 to 75,000 psi. Elongation in 2 inches... 18-25%. For welding of mild steels. Equally good on low alloy steel and hard-to-weld steels. "JETWELD" is ideally suited for welding higher carbon steels normally welded with low hydrogen electrodes. Also fulfills physical requirements of E-6012 and E-6013 electrodes in the flat position. For use with AC or DC.



**HORIZONTAL FILLET WELD.** Plate size is  $\frac{3}{4}$ ", fillet size  $\frac{3}{8}$ ", "JETWELD" electrode size  $\frac{1}{8}$ ". Current is 360 amps, arc speed 14 inches per minute.

### START CUTTING COSTS

NOW Ask the shop that's using JETWELD today or order a trial lot of JETWELD. Immediate savings will be obvious. Procedures are in Bulletin 481. Write today.

**KIPP**  
*Air Grinders*



• **FASTER SPEEDS**  
• **BETTER RESULTS**  
• **LOW PRICES**

**MODEL JA**  
**50,000 R.P.M.**  
Weight 12 ounces; length 6 1/4 inches; chuck size 1/8 inch. Wheel guard removed for better illustration.

**\$42**  
**IN U.S.A.**

## THEY GRIND—NOT JUST RUB!

The RPM's stay up while grinding... not only when the grinder runs idle.

It is an established fact that surface speeds must stay up to approximately a mile a minute if you want to grind... not just rub. Every mechanic knows this, but an inexperienced buyer may order tools that maintain proper grinding speeds only when running idle. The speed of Kipp air grinders drops but slightly when put to work. That means better work... longer wheel life.

## MADISON-KIPP CORP.

207 Waubesa St., Madison, Wis., U.S.A.

Write for KIPP Air Tool Catalog at 3006

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APRIL, 1954

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# The Green Engraver

Used and endorsed by  
tool and die, electronic,  
machine, plastics, radio,  
electrical and instrument  
manufacturers.

A real money saver.

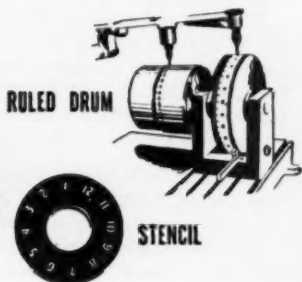
**ENGRAVES  
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PROFILES  
and MODELS**



**NUMBERED RING**

**FREE: Brochure—  
yours upon request.**

**Special attachments and  
engineering service available  
for production work.**



Specify the Green Engraver for  
precision engraving on metal, plas-  
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... engraves panels, name plates,  
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attachment available.

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**386 PUTNAM AVENUE  
CAMBRIDGE - MASS.**

# Boyar-Schultz

## No. 2 PROFILE GRINDER

*... for grinding Irregular  
Shapes and difficult Contours*

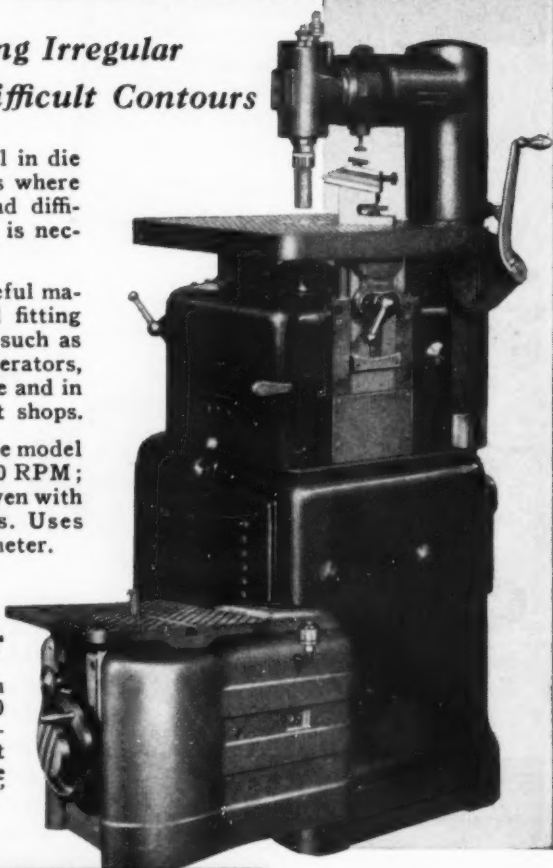
A standard machine tool in die shops and in tool rooms where grinding odd shapes and difficult, irregular contours is necessary.

It is a particularly useful machine for grinding and fitting large dies and punches such as forming dies for refrigerators, table tops, sanitary ware and in automotive and aircraft shops.

Spindles in dual spindle model illustrated, turn at 10,000 RPM; stock removal is rapid even with small diameter wheels. Uses wheels  $\frac{1}{4}$ " to 3" in diameter.

### No. 1 Profile Grinder

A bench model with spindle speed of 20,000 RPM. Performs in minutes, many jobs that would ordinarily require hours. Uses wheels  $\frac{1}{8}$ " to 1" diameter.



# BOYAR-SCHULTZ

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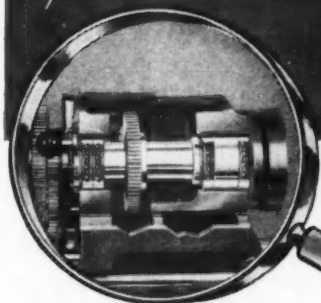
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SCRIBING THESE  
TIME SAVING  
MACHINE TOOLS

# Close-Up Look Tells Why... THE NEW 12" SWING

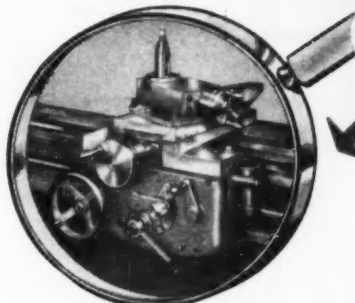
## Logan LATHE

DELIVERS PLUS PERFORMANCE



### The HEADSTOCK Is Rugged and Rigid

Massively proportioned spindle for extreme rigidity on heavy cuts. Oversize ball bearing mounting for sustained accuracy.

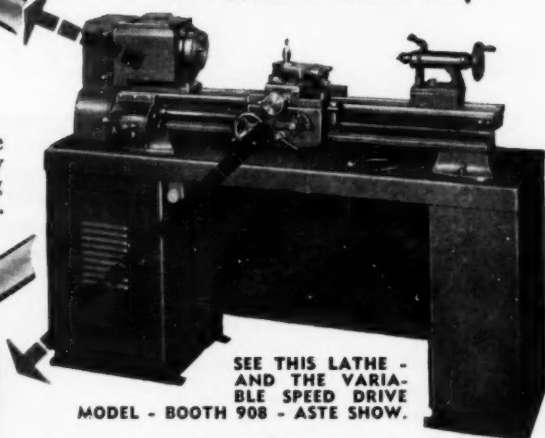


### The CARRIAGE Is Massive, Convenient

Large dials have widely separated graduations for accurate reading. Precision ground surfaces on cross slide and saddle permit mounting fixtures and use of magnetic indicators. Extra wide and long bearing surface. Convenient, lever-operated, disc type clutch. Heavy compound for rigidity.

**LOOK TO LOGAN FOR  
BETTER LATHES AND SHAPERS**

*For Production, Maintenance,  
Tool Room or School Shop*



SEE THIS LATHE -  
AND THE VARIABLE  
SPEED DRIVE

MODEL - BOOTH 908 - ASTE SHOW.

The closer you inspect this new 12" swing Logan Lathe, the *better* it looks. The advanced design of individual parts, and the precision construction throughout become more evident. You will like the size, too. Its 35" center distance, 1 $\frac{3}{8}$ " spindle hole, 1" collet capacity, and rugged, massive proportions mean extra capacity, stability and power. Keep this newest Logan in mind as you make plans for your production line, tool room, shop, or student training program. The quality you see in your close-up look will serve you well through extra years.

#### Brief Specifications of Logan 12" Lathes

Swing over bed and saddle wings, 12"... Center Distances, 23" and 35"... Turret Lathe Models have 43" bed length... 1 $\frac{3}{8}$ " spindle hole... 1" collet capacity... 16 spindle speeds, 38 to 1260 rpm.

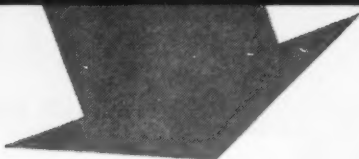
Get full facts—See your Logan Dealer—or WRITE to

**LOGAN ENGINEERING CO.**

Lawrence and Lamon Avenues

Chicago 30, Illinois

*it's our error!*



## ...IF YOU HAVEN'T BEEN GIVEN "THE FACTS" ON SPEED STEEL PLATES

they are

**SPEED CASE**

a low carbon free machining  
open hearth steel

**SPEED TREAT**

a medium carbon free machin-  
ing open hearth steel

**SPEED ALLOY**

a chromium alloy steel

### THERE ARE SPEED STEEL SPECIALISTS IN...

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<input type="checkbox"/> Montreal, Quebec	Peckover's, Ltd.
<input type="checkbox"/> Newark (New York), N.J.	Grammer, Dempsey & Hudson, Inc.
<input type="checkbox"/> Oakland (San Francisco), Calif.	Earle M. Jorgensen Co.
<input type="checkbox"/> Paterson, N. J.	Passaic County Steel Service, Inc.
<input type="checkbox"/> Philadelphia, Pa.	Horace T. Potts Co.
<input type="checkbox"/> Toronto, Ontario	Peckover's, Ltd.
<input type="checkbox"/> Tulsa, Okla.	Earle M. Jorgensen Co.
<input type="checkbox"/> York, Pa.	Horace T. Potts Co.

briefly they

- are easy to heat-treat
- are fast machining
- give longer tool life
- produce better finishes

For fast information attach this to your company letterhead and return to

## W. J. Holliday & Co., Inc.

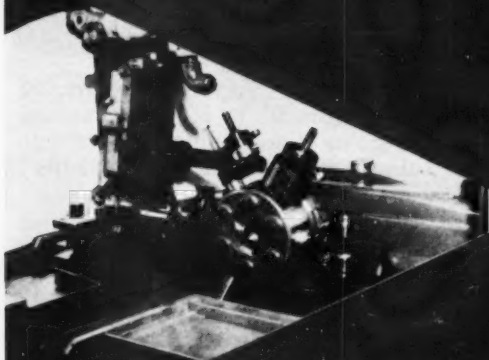
545 WEST McCARTY STREET • INDIANAPOLIS, IND.

Speed steels are produced by W. J. Holliday & Co., Inc., Speed Steel Plate Division

PRECISION IS  
AS PRECISION DOES

## R AND L TOOLS

*Established in 1890 - Philadelphia*  
*World's Largest Tool Company*



Constantly geared for accuracy and alignment at every point of adjustment, these are tools of toughest, heat-treated alloy steel. They guarantee not to bend or give way. R AND L TOOLS were developed at a machine shop . . . the culmination of over 60 years of experience and research . . . the masterpiece of the tool maker's art.

R AND L TOOLS pay for themselves through reduced setting up time . . . speeding up production . . . lower operating costs!

*Write for Catalog*

**RIGHT R and L LEFT TOOLS**

1825 BRISTOL STREET - PHILADELPHIA 40, PENNA.

TURNING TOOL • CARBIDE OR ROLLER BACKRESTS • RELEASING OR NON-RELEASING TAP AND DIE HOLDERS, (ALSO FURNISHED FOR ACORN DIES) • UNIVERSAL TOOL POST • TURRET BACKREST HOLDER • CUT-OFF BLADE HOLDER • RECESSING TOOL • REVOLVING STOCK STOP • FLOATING DRILL HOLDER • KNURLING TOOL

See R and L Tools at Booth No. 134 - Industrial Exposition, Philadelphia - April 26-30

April, 1954



**Increase Production With Your Old Planers . . .**

## **CONVERT WITH A PORTLAND HEAD**

The Portland Heavy Duty Milling Head can be used to convert your planer to a modern, high production planer-type milling machine. On one installation two Portland Heads were mounted on an old style planer. Job consisted of face milling 24 feet of laminated steel 16" high. With the Portland Heads the machining time was cut from 48 hours to 4.



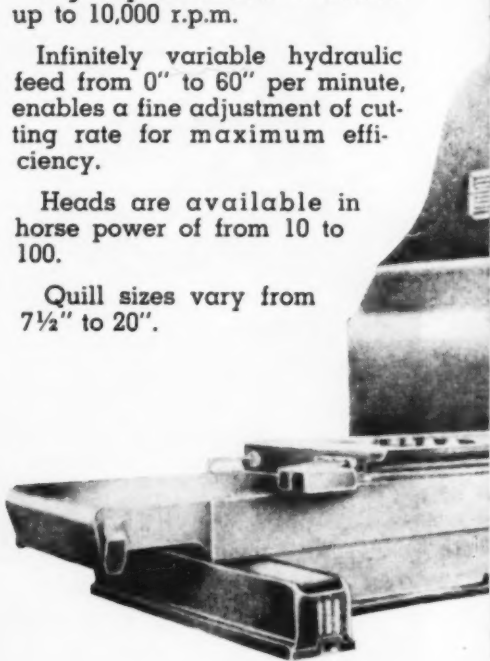
Standard Heads are provided with 22 speeds in various ranges up to 1000 r.p.m.

High Speed Heads available up to 10,000 r.p.m.

Infinitely variable hydraulic feed from 0" to 60" per minute, enables a fine adjustment of cutting rate for maximum efficiency.

Heads are available in horse power of from 10 to 100.

Quill sizes vary from 7½" to 20".



**WE BUILD THE BEST  
REBUILD THE REST**

For specifications  
send for brochure "BBD"

**MACHINE TOOL MANUFACTURERS,  
PORTLAND MACHINE TOOL WORKS, INC.**

# PORTLAND "10"

## VERTICAL MILLING MACHINE

A heavy duty vertical mill designed to meet a need in industry. It is a "brute" for work, capable of high production. Basic components are arranged to facilitate ease of operation, set-up and maintenance and accommodate large work.

Anti-friction bearings and a pressure lubricating system guarantees long life and minimum upkeep. All castings are special alloy, fine grain, grey iron, with non-metallic ways where required for high speed operation.

For specifications send for brochure "BBD"

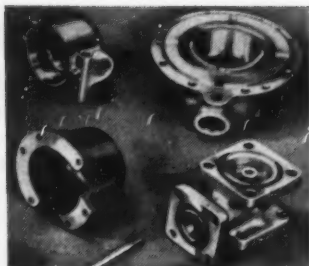
Among other products, PMTW Inc. offers an extremely rugged 10" Spindle Horizontal Boring Mill, optionally equipped with the Portland Hydraulic Tracer Control. Portland engineering has also evolved an infinitely variable hydraulic drive which together with the Portland Tracer Control system, can modernize and convert, outmoded planing and milling equipment to modern duplicating type machines.



**REBUILDERS & HEAVY MACHINISTS**

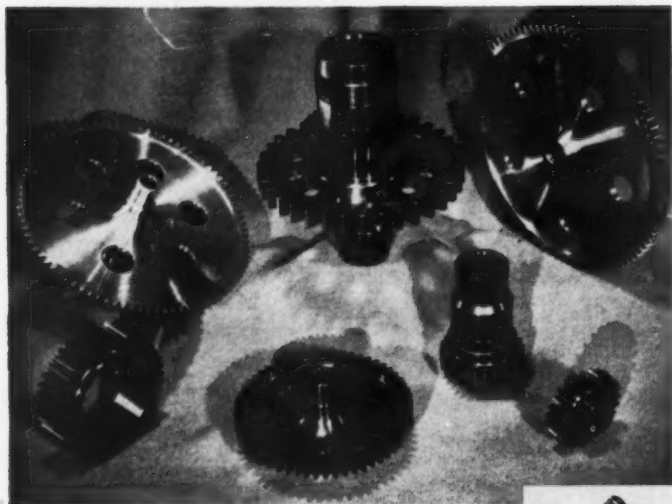
FOOT OF BROADWAY, SOUTH PORTLAND, MAINE

Telephone  
3-0231



**YOU CAN DEPEND ON**

*for Efficient.*



Specialists in producing Gears (precision, aircraft, instrument, commercial), Gear Assemblies, Gear Boxes, Gear Pumps and Component Gear Parts.

The ferrous and non-ferrous metal parts, shown above, were delivered to the customers at low cost and with a minimum of scrap . . . the result of skilled men using modern equipment. 30 years of precision tool manufacturing experience goes into the making of special tools and gages used in the mass production of such component parts. This is one of the big reasons why more and more manufacturers are contracting with Vinco; they know their finished product is only as good as its component parts.

**VINCO CORPORATION**

9127 Schaefer Hwy.  
Detroit 28, Mich.

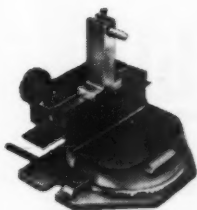


**VINCO**

MILLIONTHS OF AN  
INCH FOR SALE

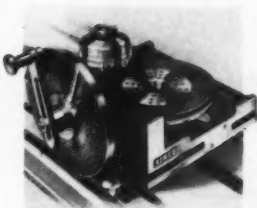
# VINCO

## *Fast Contract Manufacturing*



### **Model B-1 Angle Tangent to Radius Dresser.**

Proved to be best for dressing concave or convex radii with tangent angles on grinding wheels. Accuracy guaranteed to be within .0001".

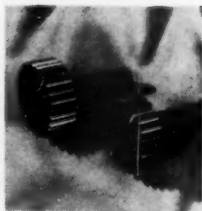


### **PRECISIONDEX**

A mobile, easy to operate indexing fixture. Guaranteed to be accurate within 30 seconds of arc. Occupies little space. Ideal for both inspection and production.

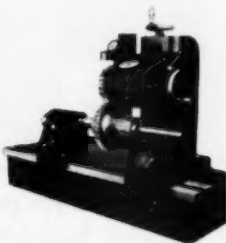
### **Spline Gages**

Vinco gage engineers will work with your engineers in setting up a practical, efficient gaging program. Vinco gages can help eliminate many manufacturing errors.



### **Gear Rolling Inspection Fixture.**

A universal type fixture that checks worm, spur or helical gears. Gears can be checked between centers, while on work arbors or by use of adapters.



## **STAMPINGS**

## **PLATING . . . ASSEMBLING**

A fine source geared for high production runs with press capacity of 500 tons. One of Michigan's largest modern plating plants with assembling facilities.

Have Industrial do the whole job . . . stamping, plating and assembling.

### **INDUSTRIAL STAMPING & MFG. CO.**

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DIVISION OF VINCO CORP.

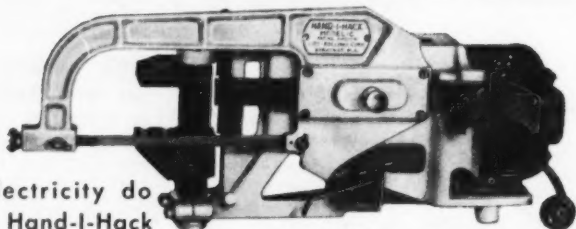
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Use

**HAND-I-HACK\***

**Portable**

**POWER HACK SAW**



**TAKE IT EASY**—let electricity do your muscle work! Hand-I-Hack eliminates the sweat and fatigue of hack sawing. Plugs into any wall or light socket. Truly portable — can be carried anywhere with one hand. Has swivel vise — operates in any position: horizontally, vertically, at an angle, even upside down. Maximum capacity: 3" x 3" square cut. Uses lower cost standard 10" hand blades — will cut solid bar stock and thin wall tubing, pipe, conduit, cable, rolled forms, etc.



Cutting small diameter brass tubing, using wood block false jaws.



Making a square cut on solid 3" steel bar.

• Write for catalog and name of dealer



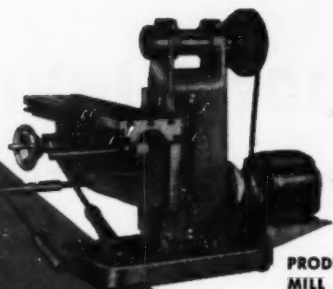
\*T.M. Reg. U.S. Pat. Off.

**Lipe - ROLLWAY CORPORATION**

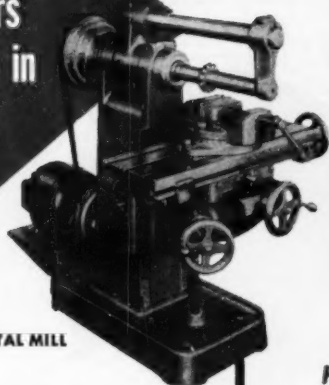
Manufacturers of Automotive Clutches and Machine Tools

814 Emerson Ave., Syracuse 1, N. Y.

These 3  
precision  
Benchmasters  
make money in  
every shop!

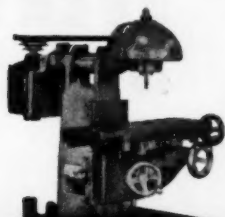


PRODUCTION  
MILL



HORIZONTAL MILL

VERTICAL MILL



Steel  
Floor Stands

It's real economy to equip your shop with one or more Benchmaster mills. Why? Because these millers do small jobs with the same precision and speed as big, expensive mills. In fact, several small Benchmasters will even out-produce a big mill on work within their capacity! But consider the tremendous difference in investment and savings made! Set-ups are easier and faster. Operation is simple, cutting operator costs!

**MILL HORIZONTALLY OR VERTICALLY WITH THE SAME MACHINE!** Simply exchange spindle assemblies to convert. Production models with lever feed also available.

Full line of accessories  
for every milling requirement!



6" and 8"  
Rotary Tables



Swivel-Base Vise



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Arbors and Collets

Ask for complete  
information on  
Benchmaster Mills today!  
Benchmaster  
Manufacturing Co.,  
1835 W. Rosecrans  
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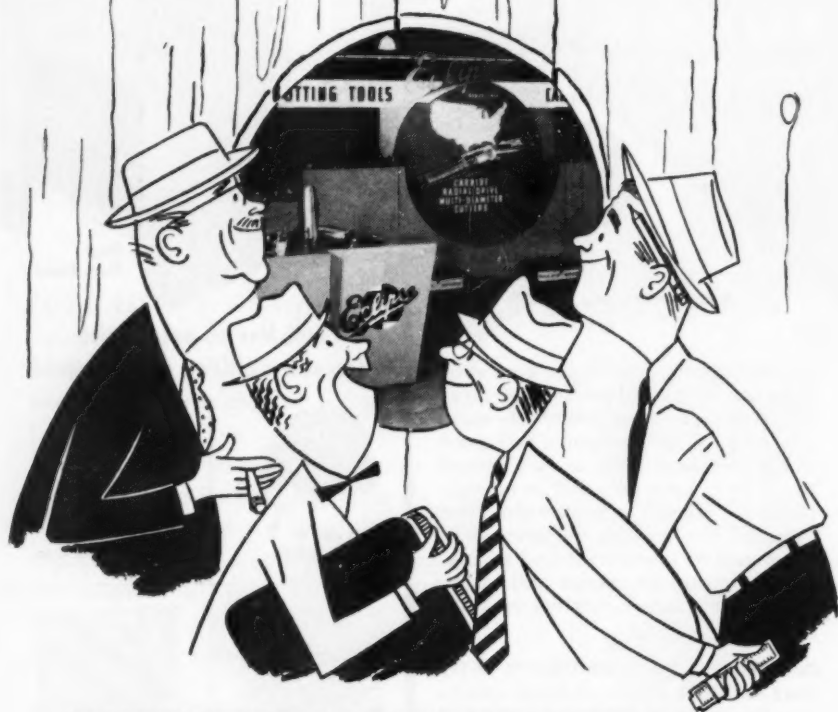
World's largest  
manufacturer of small punch  
presses and mills.



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to take a look at our products!

BOOTH 239 • PRECISION HALL • ASTE EXPOSITION



MANUFACTURERS OF FINE END CUTTING TOOLS

***ECLIPSE COUNTERBORE CO.***  
*Founded in 1913*

DETROIT 20, MICHIGAN

For Years, Milne  
Has Been Delivering  
Hollow Die Answers\*  
To Tooling Problems..



\*AD are Genuine  
Tool Steels

## GRAPHITIC HOLLOW DIE STEEL

Widest Range Of Applications Including forming, drawing, sizing, flanging, embossing, and combination dies, work support blades, forming rolls, steel mill straightening rolls, machine parts, plug, thread and ring gauges, cams, bushings, sleeves, mandrels, fixtures and other applications.

**NOW  
MILNE**  
has the answer to  
a diemaker's dream!



- MINIMIZES MACHINING
- CUTS WASTE
- PRODUCES SUPER  
WEAR-RESISTANT,  
NON GALLING TOOLS

JIC-06 . . . Oil Hardening,  
Non-Deforming . . . Full Length  
Kolorkoted Pink and Gray for  
Permanent Identification

This new combination of Timken® Graphitic Steel features in Hollow Die (Tubular Tool) form is Milne's latest bee-line to better, lower-cost tooling. Has a double advantage over standard oil hardening tool steels.

1. Free graphite makes it the fastest, easiest machining tool steel in tubular form and insures non-seizing properties.
2. Diamond-hard carbide particles guarantee super wear resistance. Rough turned O.D. and I.D. Saw cut faces. Furnace annealed — no scale. Cut to any length.

Stocks of a range of sizes being built to meet demand. Write for a start list and Milne's new Hollow Die Catalog section.

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LTD.  
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**A. MILNE & CO.**  
Established 1887  
745 WASHINGTON ST., NEW YORK 14, N.Y.

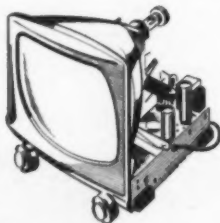
America's Leading Tool Steel Specialists  
Complete Line Of Tool Steels—Hollow and Solid

Complete line of tool steels. Wide range of grades and sizes.

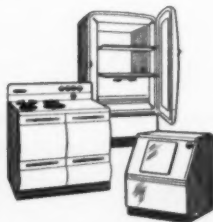


**UNBRAKO SELF-LOCKING SOCKET SET SCREWS** feature the following advantages: knurled cup point that won't work loose; accurate hex socket for nonslip,

positive drive; fully formed threads—Class 3 fit; heat treated alloy steel for strength; standard sizes—#4 to 1"—in a full range of lengths.



**USE UNBRAKO's** wherever ordinary cup point set screws are used. On radios, television sets and electronic equipment.



On refrigerators, washing machines, and other household appliances.

## 9 times out of 10 a standard UNBRAKO will do the job

A special socket screw may not be necessary, a standard UNBRAKO usually does the same job—much cheaper. Your local industrial distributor stocks Standards. He gives immediate attention to your requirements, and such extras as special delivery to your plant. Write for UNBRAKO Standards. STANDARD PRESSED STEEL CO., Jenkintown 52, Pa.



SOCKET SCREW DIVISION



On power mowers, power saws and other power tools.

# SPS

JENKINTOWN PENNSYLVANIA



UNBRAKO Standards—as listed in the SPS Catalog—are stocked by leading industrial distributors everywhere.

## "LATHEDOG" LEARNS ABOUT LATHE APRONS

DOESN'T  
SEEM TO  
FIT!

WHAT'S  
**LATHEDOG**  
DOIN' WITH  
THAT SHOP  
APRON?

THE BOSS TOLD HIM TO  
TRY THE APRON ON THE  
NEW **CININNATI LT...**  
SO-----



center on . . .

# cincinnati

J.R.WILLIAMS

IF HE KNEW  
WHAT HE WUZ  
DOIN', HE'D  
BE RAVING  
OVER THE  
CONVENIENT  
CONTROLS  
AND SAFETY  
FEATURES OF  
THE APRON  
ON THAT NEW  
LATHE.'



Copyright, 1954 by NEA Service, Inc.

Large-size prints of this  
J.R. Williams cartoon  
are available.



When the boss catches up with Lathedog, he'll learn that the apron on a Cincinnati LT Lathe is about the most convenient ever built. With a spindle start-stop lever plus cross and longitudinal feed levers that lift to engage, even Lathedog will have a hard time making a mistake. Shop men appreciate the high-priced features on low-cost Cincinnati Lathes. That's why they like to run them.

1. All geared headstock
2. 12 spindle speeds in geometric progression
3. One-shot lubrication of carriage ways and cross slide
4. Ground bedway (flame-hardened at extra cost)
5. Tapered key drive spindle nose
6. Multiple disc clutch and brake
7. 32 thread and feed changes
8. Forged steel spindle and all headstock shafts mounted in precision antifriction bearings

Other products: Cincinnati Tray-Top Lathes and Cincinnati Bench, Floor and Radial Drills.

For complete catalogs, prices and name of your local dealer, write on company letterhead to Cincinnati Lathe & Tool Co., 3255 Disney, Cincinnati 9, Ohio.

# lathes and drills







## NEW UNIVERSAL RADIAL Hole-Drilling Machine

•  
A Standard Machine  
Designed for  
Variety Production

Why build a special machine for drilling radial holes when a standard machine equipped with Govro-Nelson Automatic Drilling Units will, in many cases, perform the work of a special machine that would cost considerably more!

Any number of drilling units up to eight may be employed, the units being movable not only through 360 degrees on the circular table but also movable endwise on riser plates to meet the requirements of the part being drilled.

The machine may also be used for tapping operations with Govro-Nelson Tapping Units. It has a range of 1/32" to 3/8" on drilling operations and 0-80 to 3/8-16 on tapping operations, depending on material and spindle speeds. A single, momentary contact start-button causes all units to operate simultaneously.

**VISIT OUR EXHIBIT AT THE  
A.S.T.E. SHOW  
Booth No. 808**

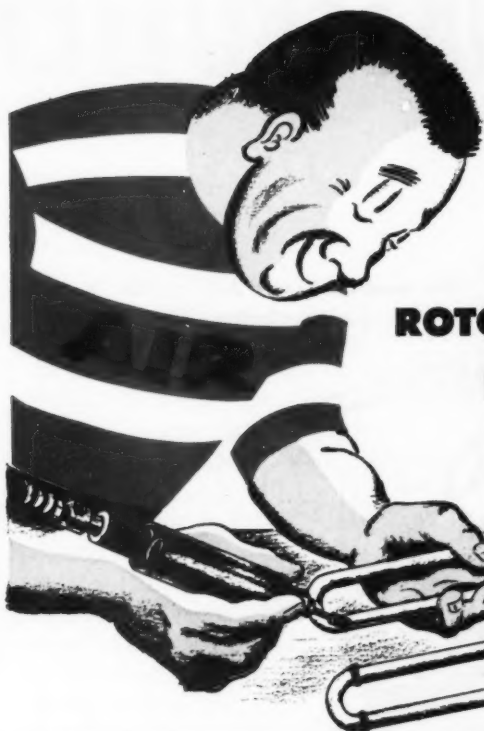
WRITE FOR  
*Literature*

### GOVRO-NELSON CO.

Machinists of Precision Parts for 30 Years  
**1933 Antoinette  
Detroit 8, Mich.**

*Automatic*

**DRILLING UNIT**



# NEW

## 40,000 RPM

### ROTOR PENCIL GRINDER

**pays for itself  
in 3½ weeks**

#### PENCIL GRINDER FACTS

WEIGHT . . . . . 13 ounces  
LENGTH . . . . . 5¼"  
DIAMETER . . . . . 1"  
FREE SPEED . . . . . 40,000 RPM  
COLLET . . . . . ¼" or ⅜"

For dies, patterns and 1001 grinding jobs.

**JOB**—High pressure ½" diam. tubing for condensers—grind welds smooth. Used heavier die grinders. Took 15 minutes per weld.

**SOLUTION**—Tried new Rotor Pencil Grinder. Operates at 40,000 RPM.

**RESULTS**—Grinding time cut 7 minutes per weld, or 46.5%. This "pay-off" amounts to \$22.32 per week—pays for grinder in 3½ weeks. Mounted points last twice as long, adding to savings. Customer bought 8 Rotor Pencil Grinders.

Find out how this new grinder and other new Rotor Tools can save you time and money! Ask for a demonstration.



SCREW DRIVER

THE **ROTOR TOOL** CO.  
CLEVELAND, OHIO



IMPACT WRENCH

# *ample* HORSEPOWER



With *Haskins* Flexible Shaft Equipment for All  
Grinding • Sanding • Filing • Polishing

Haskins Flexible Shaft Tools supply all the power needed without burdening skilled hands with bulky, heavy motors. The Haskins line provides a wide range of models with drives, horsepower, speeds, tools and attachments—including the one assembly exactly suited for your particular job. Write for the latest catalog.

## *haskins*

2645 W. HARRISON ST. • CHICAGO 12, ILL.

# ...out of the weigh!

*For over 35 years—virtually from the beginning of the flexible shaft industry—Haskins has led the field. For Haskins Flexible Shaft Tools are quality designed and built for rugged production work—to stand long, continuous usage. That is why Haskins is standard equipment in hundreds of the most efficient plants throughout the country.*



Haskins flexible shaft ("power-away from the job") equipment: up to 2 hp.





**No. 2 INDICATOR**  
(2 1/4" DIAMETER)



**No. 1 INDICATOR**  
(1 3/4" DIAMETER)



**MIDGET**  
(1 1/8" DIAMETER)



**Dializer**  
instantly converts any  
AGD Adjustable Limit  
Snap Gage Frame (and  
"Standard" Frames  
larger than AGD) to  
DIAL Snap Gages

**Now...AT YOUR COMMAND**  
**A FULL RANGE OF Dializers**  
PATENTED

Conversion is simply a matter of removing a pair of pins from the Snap Gage and inserting Dializer. Range of adjustment remains the same as before conversion.

**See These and other Precision Gage Improvements at the ASTE Show. Booth 238**



ENTHUSIASTIC USERS, impressed with Dializer performance and adaptability, have insisted that we broaden the range of this practical device. In response, we now make available Dializers with a range of indicators from 1 1/8" to 2 1/4" diameter, graduations of .001", .0001", .0005" and .00025", and a wide variety of dial markings, including metric models.

Get acquainted with this economical, easy way of making your Snap Gages more functional, more valuable, more productive . . . at little cost. Write for details.



**STANDARD**  
*Gage Co., Inc.*  
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When the job requires special cutting tools, call in your National Tool Co. representative. He is backed by more than 49 years experience in the engineering and manufacture of special cutting tools. His assistance is yours, without obligation, whether you're interested in one tool or a complete tooling program.

Cleveland 2, Ohio



# CUT COSTS... FASTEN "ON THE DOUBLE"

with the

## *Chicago* "214" DOUBLE RIVET SETTER



The "214" automatically feeds, inserts and clinches two rivets at a time... with speed that may mean a big saving in your fastening costs.

14" throat makes large assemblies easy to handle. For up to  $\frac{9}{64}$ " diameter steel tubular rivets—lengths to  $\frac{7}{8}$ ". Quick Change Rotary Type Hoppers and Raceways permit a 5-minute changeover to rivets of different size. Adjustable anvils and riveting centers add to its versatility.

Ask us how the "214" can help you cut costs. Send a sample of your problem assembly (or blueprint) for a Free fastening analysis.

### FREE CATALOG

contains valuable engineering information and rivet specifications plus illustrated descriptions of 26 Chicago Automatic Rivet Setters.

## *Chicago Rivet & MACHINE CO.*

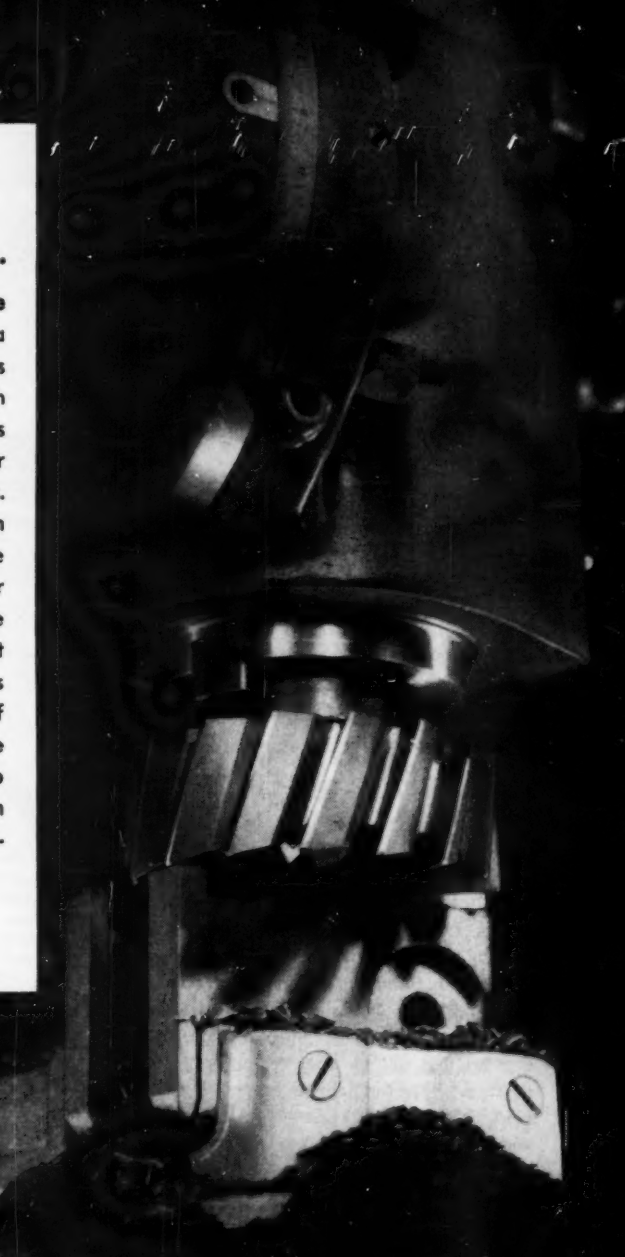
9610 West Jackson Boulevard, Bellwood (Chicago Suburb) Illinois

Branch Factory: Tyrone, Pa.

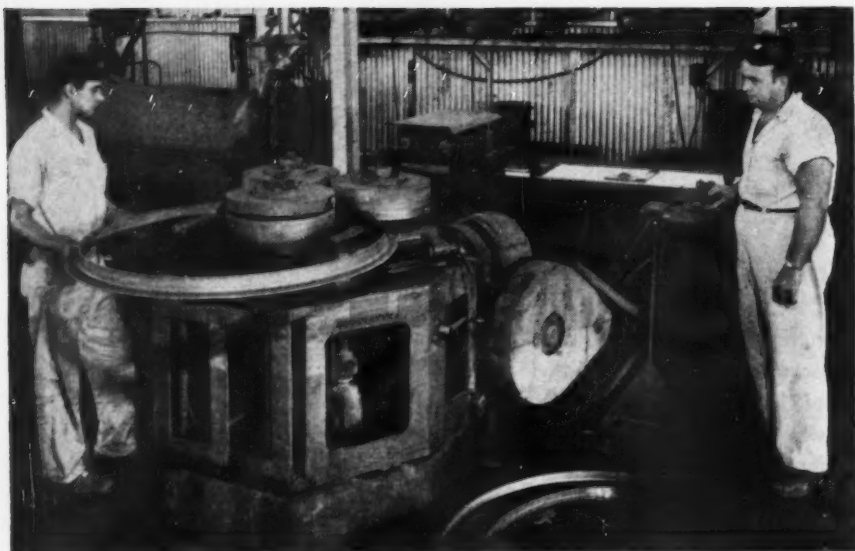
Real  
"Cost-Cutters"...

. . . **Brown & Sharpe Cutters.** The real cost of a cutter is measured by its performance and the length of its service life. That's why more shops prefer Brown & Sharpe Cutters. They're expertly made from the finest steels to give you more clean cuts per dollar invested. And, they're available in the widest variety of types and sizes including a complete line of end mills. Write for the New Catalog 35C to help you when ordering. Brown & Sharpe Mfg. Co., Providence 1, R. I., U. S. A.

**BUY THROUGH YOUR  
LOCAL DISTRIBUTOR**



**BS**  
***Brown & Sharpe***



"Buffalo" No. 2 Bending Roll turning out angle rings at Bushnell Steel Works, Tampa, Fla.

## "BUFFALO" BENDING ROLLS WILL BRING NEW BUSINESS INTO YOUR SHOP, TOO

If you've had to turn away or job out metal bending business, why not do as Bushnell Steel Works and hundreds of other top-notch shops have done—put a high-production "Buffalo" Bending Roll on the job. These easy-to-operate machines are rolling out commercially perfect circles, spirals, arcs and other curved shapes from almost every type of structural—even the tricky leg-in angle bending—faster and cheaper than by any other method. There is a bending roll for your requirements whether for light or heavy work. Write for Bulletins 3344-A and 352-B, and look into this profitable way of bending.



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## **BUFFALO FORGE COMPANY**

161 Mortimer St.

Buffalo, New York

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

**PUNCHING**

**SHEARING**

**BENDING**

# Pick the Top "NAME BAND"

for all these  
Metal-Sawing  
Jobs



## For Heavy Production Cutting

You'll like this rugged, break-resistant standard tooth blade for trimming gates and risers off castings, cutting metal bars and other tough production work. Hardened along the tooth edge only, it cuts fast, stays sharp, gives a longer run for your money! All standard widths and tooth spacings. Furnished in 100' and 300' coils or welded to length for specific machines.



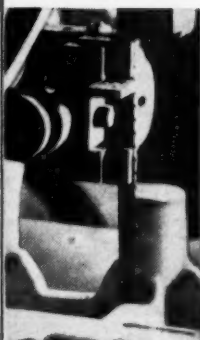
## For Contour Cutting and Die Making

In the narrower widths, this edge-holding, smooth cutting blade is an outstanding favorite for contour work. Because the teeth are set with absolute evenness on both sides of the blade, you can depend on straight, on-the-line cuts with no "leading." All standard widths and tooth spacings furnished in 100' and 300' coils or welded to specified length.



## For Horizontal Cut-Off Work

Furnished either Regular or Wavy Set in the wider widths, this Simonds-made standard tooth blade easily handles the wide variety of cutting required in general shop and steel warehouse operation. All sizes come in 100' and 300' coils or welded to length.



## For Cutting Soft Materials

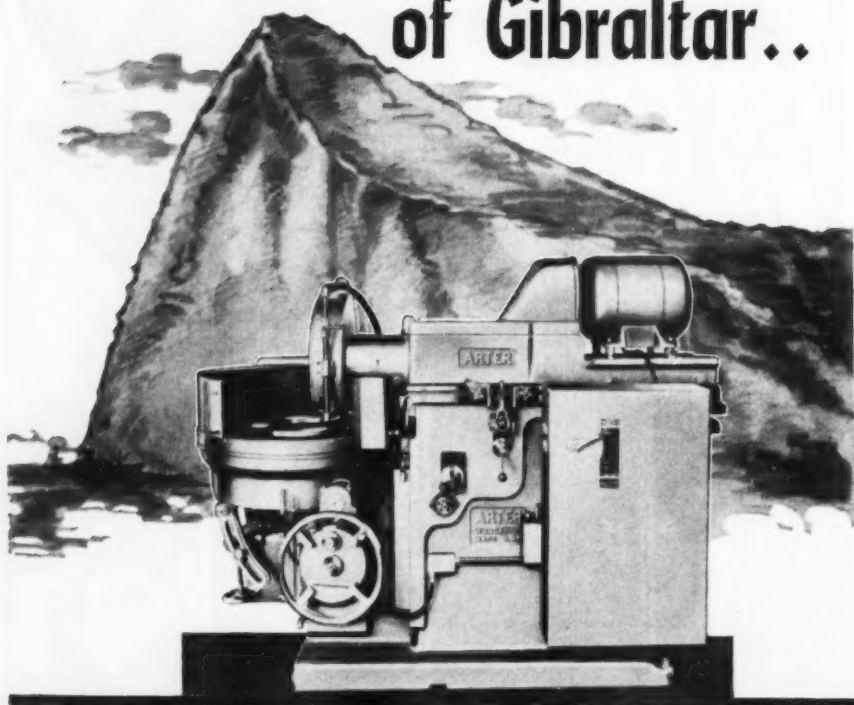
This Skip-Tooth Hard Edge Blade has extra gullet capacity with maximum blade strength . . . gives fast, trouble-free service in cutting aluminum, magnesium, plastics, plywood and hardwood. All standard sizes available in 100' and 300' coils or welded to length for specific machines.

Get Delivery From Stock From Your Industrial Supply Distributor

Factory Branches in Boston, Chicago, San Francisco and Portland, Oregon.  
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# Like the Rock of Gibraltar..



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## Rugged Dependability

This trademark on your grinder means rugged dependability has been built in. For precision down to the last tenth, you will find ARTER always reliable. ARTER engineers have solved hundreds of trying grinding problems. They can solve yours.

**ARTER GRINDING MACHINE COMPANY  
WORCESTER 5, MASSACHUSETTS**

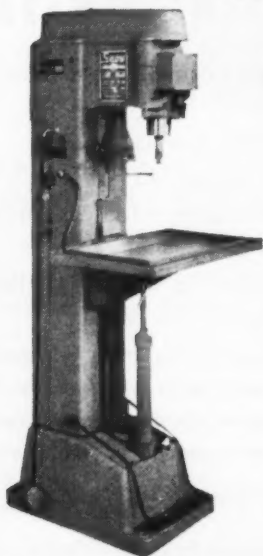
Rotary Surface Grinders, Cylindrical Grinders, Flat Circular Cutter Grinders,  
Internal Grinders, Carbide Tool Cutters

Agents in industrial centers of United States and Canada

# SNOW

MANUFACTURING COMPANY

455 EASTERN AVENUE • BELLWOOD, ILLINOIS



## FULL UNIVERSAL MACHINES

Electrically Operated—Air Controlled

### ... *Drilling*—TYPE "UD"

Capacities from #60 through  $\frac{3}{8}$ " in two sizes

### ... *Tapping*—TYPE "UT"

Capacities from #0 through  $\frac{3}{4}$ " in four sizes

### ... *Threading*—TYPE "TR"

Capacities up to 1" in two sizes

## AUTOMATIC and SEMI-AUTOMATIC JIGS and FIXTURES

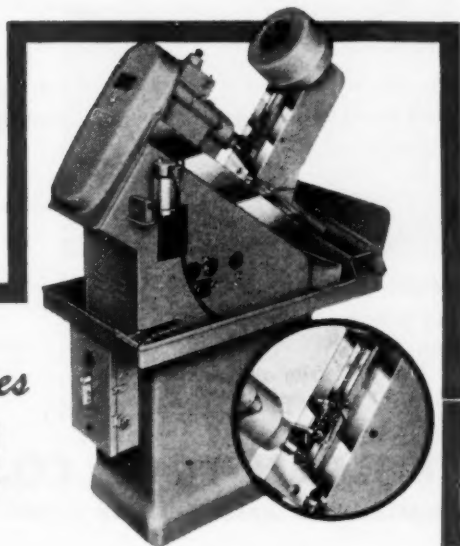
for Indexing and Clamping

A complete line of basic Master Fixtures to permit adaptation of a wide range of parts at high production rate with low tooling cost.

## FULL AUTOMATIC

### *Nut Tapping Machines*

Completely automatic hopper feed nut tapping machines up to  $\frac{1}{2}$ "—incorporating simplicity and low tooling cost. Standard taps are used. Precision class 3 and 4 fits and parallelism maintained at high speed and high production.







## INDIVIDUAL VULCAINAIRE DUST COLLECTING UNITS

Are used on surface and other grinders where grinding dust must be removed.

Inexpensive, compact units, with no moving parts.  
Operated from your present air supply.

Installed in a few minutes, eliminating need for costly centrally located dust collecting systems.

The collector element is mounted on the side of the machine. Quickly cleaned, requiring no refills.

Vac-suction pick-up device (vacuum nozzle) is mounted on the grinding wheel guard or close to grinding wheel on other applications. This mounting permits constant contact with dust as the wheel is moved up or down.

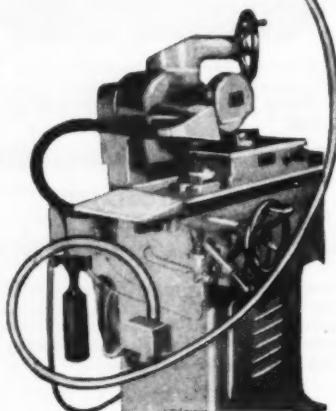
A simple needle valve operates the unit, and can be shut off whenever the machine is not in use.

Available in 700 series for grinding wheels 7" dia. or less.

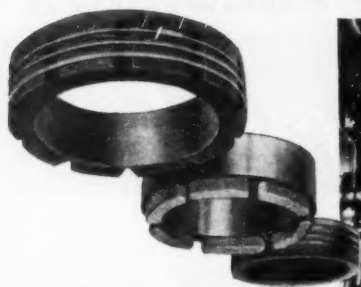
Made by the makers of Vulcanaire The jig grinding attachment.

*Write on your letterhead  
for "Dust Collector" Booklet.*

**VULCAN TOOL CO.**  
HIGHLAND AND LORRAINE, DAYTON 10, OHIO



# From the NEW Blanchard Wheel Shop



## VITRIFIED WHEELS

For more than 25 years, Blanchard has directed its efforts toward developing the best grinding wheels for Blanchard Surface Grinders. It began by pioneering with silicate bonded wheels, and then resin bonded wheels. Now, from a new, ultra modern Blanchard wheel shop come *vitrified wheels* ...scientifically batched, pressed and fired ...with positive control of time and temperature.

Today, Blanchard offers complete wheel service ... silicate, resin and vitrified!

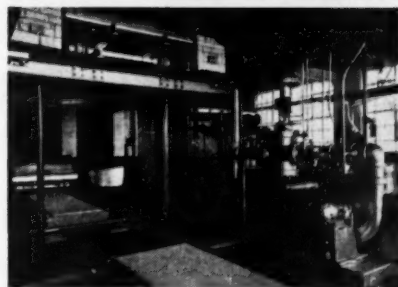
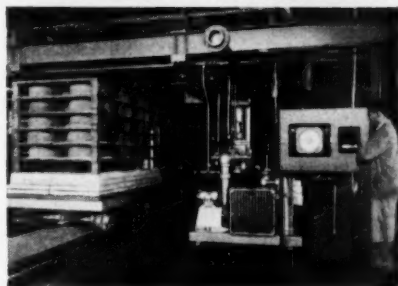
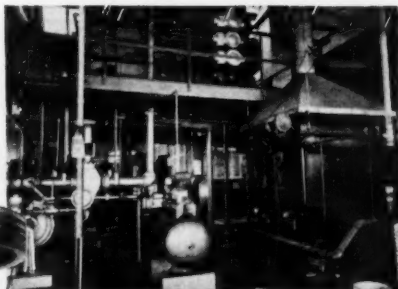
Use Blanchard wheels on your Blanchard Surface Grinder. They do a better job in less time, with less trouble and cost ... whether your work is tough as copper or fragile as glass ... whether it requires heavy roughing cuts or clean-up cuts with flatness to .000005" and finish of 1 micro-inch.

*for Better Blanchard Grinding*



**THE BLANCHARD MACHINE CO.**

64 STATE ST., CAMBRIDGE 39, MASS., U. S. A.



### COUPON

Please send free copy of Blanchard Wheel Booklet and Wheel Holder Folder. BB

NAME \_\_\_\_\_

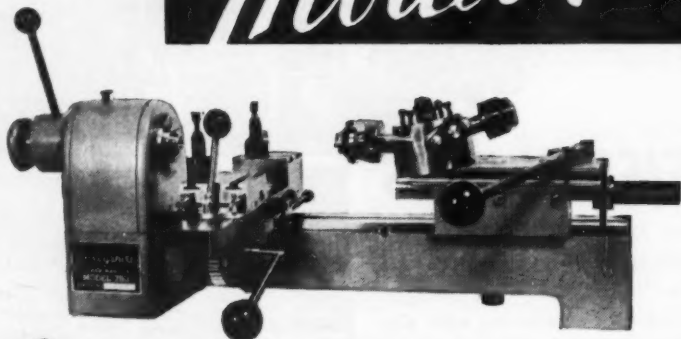
COMPANY \_\_\_\_\_

STREET \_\_\_\_\_

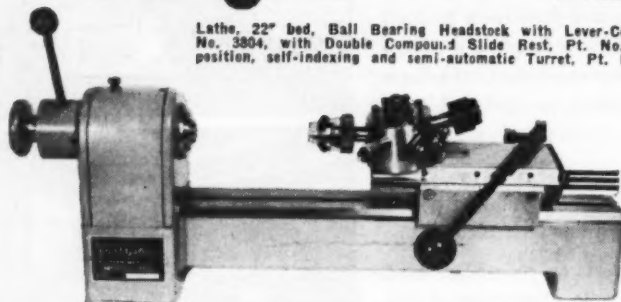
CITY \_\_\_\_\_ STATE \_\_\_\_\_

# DERBYSHIRE PRECISION LATHE

## Model 750



Lathe, 22" bed, Ball Bearing Headstock with Lever-Collet Closer, Pt. No. 3804, with Double Compound Slide Rest, Pt. No. 3652 and Six-position, self-indexing and semi-automatic Turret, Pt. No. 3610.



Lathe, 22" bed, Ball Bearing Headstock with Lever-Collet Closer, Pt. No. 3804, with Six-Position, self-indexing and semi-automatic Turret, Pt. No. 3160.

### SPECIFICATIONS

Overall Length	Distance between Centers.....12"
With Lever Chuck Closer 25"	Center Height.....2.953" (750 cm)
Length of Bed.....22"	Maximum Collet Capacity.....315" (8") (No. 80 metric)
Height to Top of Headstock 8 1/2"	Maximum Spindle Speed.....18,000 RPM
Height to Top of Lathe Bed 4"	Concentric Running of Ball
Width of Bed.....2 7/8"	Bearing Headstock
Width of Ways.....1-13/16"	Spindle......0002"
Swing over Bed.....5.905" (15 cm)	Spindle Speeds with Variable
Swing over Compound	Speed Drive:
Slide Rest.....2 3/4"	With Pulley Ratio 1 to 1.....600 to 5,000 RPM
	With Pulley Ratio 2 to 1.....1200 to 10,000 RPM

DELIVERY FROM STOCK

For  
full details  
write . . .

**F. W. DERBYSHIRE INC.**  
157 HIGH STREET • WALTHAM, MASS.

NEW PORTER-CABLE PORTABLE BAND SAW

# CUTS METAL 15 TIMES FASTER THAN HAND HACK SAW!

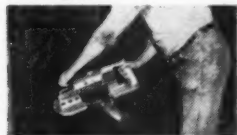


New Patented...  
Exclusive with Porter-Cable!

Model 524, Only **\$215.**



High, tight, awkward spots like this are easily accessible to Porta-Band. Cuts operator fatigue, too!



Why carry bar stock or pipe to stationary band saw, interrupt necessary work there, then carry stock back? Use Porta-Band!



On "tailor-made" jobs, general maintenance, or tear-downs, Porta-Band does the job in far less time than hand hack saw.

Slices through 1½" cold rolled steel in 41 seconds! That's fifteen times faster than a good man with a hack saw... *two-and-a-half times faster* than bulky power hack saws!

You can use this 16-pound work-demon anywhere — on ferrous or non-ferrous metals or "problem" materials. Take it into equipment yards, stock bins... tight spots where costly hand sawing is the only other answer. Compact, easy to handle, Porta-Band delivers smooth controlled sawing in any position. Only the cutting part of the blade is exposed. Cutting action pulls blade snugly into cut, holding saw firmly in place.

Powered for heavy duty... perfectly balanced... Porta-Band handles the toughest assignments. Band speed of 240 feet per minute insures swift, smooth cutting of all materials up to 3¼" diameter round, or 3¼" x 4¼" rectangular. Highest grade precision ball and needle bearings throughout. Aluminum alloy frame for lightness, toughness.

See **PORTA-BAND** at the A.S.T.E. Show,  
April 26—28. Booth No. 1324

**Porter-Cable**

*Quality Electric Tools*

MAIL  
COUPON  
FOR  
FREE  
DETAILS

PORTER-CABLE MACHINE CO.  
2324 N. Salina St., Syracuse, N. Y.

(In Canada: Send to Strongbridge, Ltd., London, Ont.)

Send full information on Porta-Band and name of nearest dealer

Name

Company

Type of Business

Street

City  County  State

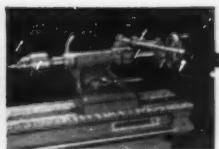
Manufacturers of Speedmatic and Guild electric tools



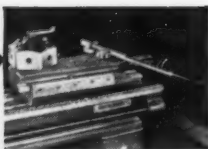
External Grinder



Milling Attachment



Handlever Tailstock



Handlever Bed Turret



Telescopic Taper Attachment



Handwheel Collet Attachment



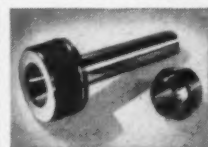
Handlever Collet Attachment



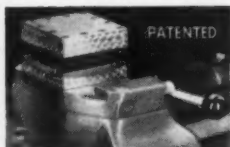
10 in 1 Tool Holder



Ball Bearing Live Center



Adjustable Collet Bushing Chuck



Square Turret Tool Block



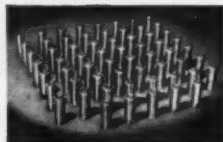
Handlever Double Tool Cross Slide



Telescoping Jaw Follower Rest and Center Rest



Collet Rack



Steel and Brass Collets



Step Chucks and Closers



Centers and Drill Pads



Thread Dial Indicator



Micrometer Carriage Stop



Four Position Carriage Stop



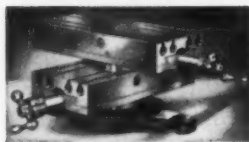
Four Position Cross Slide Stop



Safety and Standard Lathe Dogs



Coolant Pump



Universal Table

## SOUTH BEND Lathe Attachments

- Cut Production Time
- Simplify Difficult Jobs
- Increase Lathe Versatility
- Speed Up Tooling
- Perform Special Classes of Work
- Reduce Operator Fatigue

Write for Catalog 5102

### SOUTH BEND LATHE

Building Better Tools Since 1906

SOUTH BEND 23,  
INDIANA



For greater  
**ACCURACY, RANGE, SPEED**  
in grinding perforators!



## Harig *Grind All* Fixture

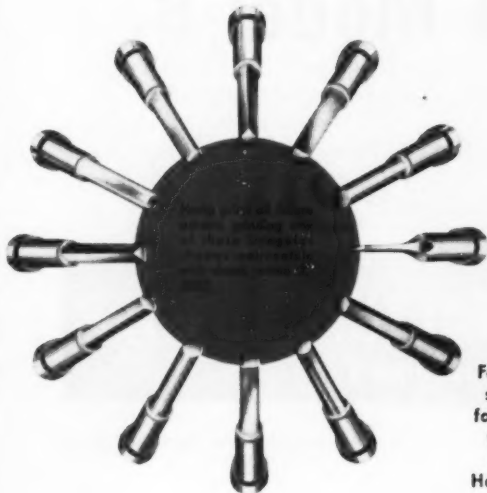
Easier movement now possible with new pre-loaded ball bearing type of construction.

A few examples of perforator shapes that can be made faster and easier with Grind-All.



Patent No.  
2449459

With the Harig Grind-All fixture, you make perforator grinding setups **THREE TIMES FASTER** — grind a variety of regular and irregular contours with the greatest possible accuracy and widest operating range. Exclusive radius generating feature makes fixture particularly adaptable to carbide grinding.



For details on service and facilities, send for the fully illustrated Harig Catalog.

## Harig

*Manufacturing Corp.*

2724 W. Belmont St., Chicago 24, Ill.



**TODAY'S BEST BUY!**



## **JOHNSON Model B**

A full 5" x 10" capacity, low cost, handy saw for use in both small and large plants. Get details. Write today.

*THERE IS A JOHNSON DEALER NEAR YOU*

**JOHNSON MANUFACTURING CORP.**  
ALBION, MICHIGAN

# DO YOUR MILLING MACHINES POSE SERIOUS '54 DOLLAR-QUESTIONS?

Are your milling machines **OLDER THAN YOU THINK?** Are they costing you **more than you can afford?** • Recent surveys indicate many thousands of millers over 10 years old . . . and some even younger . . . have been so badly overworked that they are much older than their age implies. In terms of production efficiency, it would pay to "retire" them. Precision-wise and cost-wise, many "good looking" machines are dangerously **too old** to compete in today's production economy. • Are your milling machines **wastrels?** Are they squandering dollars? Are they an "iron curtain" between you and profitable sales in today's competition? Wouldn't you consider **abler replacements**, as a sensible investment, to increase your ability to produce at a profit?

• *You'll find* sound answers to these 1954 dollar-questions in our **BULLETIN\*** on the new

## **IMPROVED TYPE "G" KEMPSMITH MILLING MACHINES**

. . . free from cost-adding non-essentials . . . fortified with practical performance advantages . . . economical in first cost and maintenance . . . **RIGHT** for toolroom, maintenance, job shop and general precision production operations.



A 7020-1PC

VALUABLE EQUIPMENT IN ANY SHOP

HEAVY DUTY  
**CHALLENGE**  
WORK BENCHES



Challenge Work Bench  
featuring tool box shelf  
and steel drawer  
with lock.



Challenge Work Bench  
with tool box shelf.



Challenge Work Bench  
without shelf or drawer.

Whatever your requirements may be — there is a Challenge work bench to meet your needs. Each has a durable cast-iron top two inches thick — will not warp, shrink, splinter or burn. And every one has leveling screws to insure a perfectly level and accurate surface. Legs are strong and solidly braced.

**A COMPLETE RANGE OF SIZES  
AND STYLES**

Three styles as shown . . . Four sizes: (top dimensions) 28x48 and 28x60 with four legs; 28x72 and 28x84 with six legs. Write for details and prices.

707R



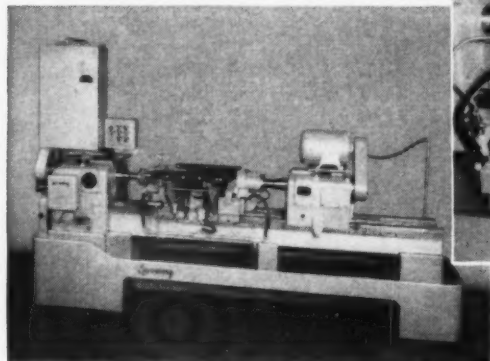
**THE CHALLENGE MACHINERY COMPANY**

Office, Factories and Show Room:  
GRAND HAVEN, MICHIGAN

# MACHINE OF THE MONTH

PREPARED BY THE SENECA FALLS MACHINE CO. "THE Lo-swing PEOPLE" SENECA FALLS, NEW YORK

*Lo-swing Model CS Automatic Drilling and Centering Machine equipped with Automatic Handling Mechanism and Special Vises.*

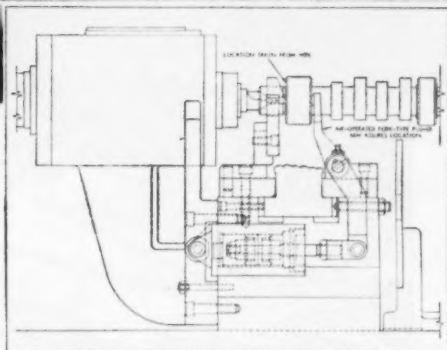
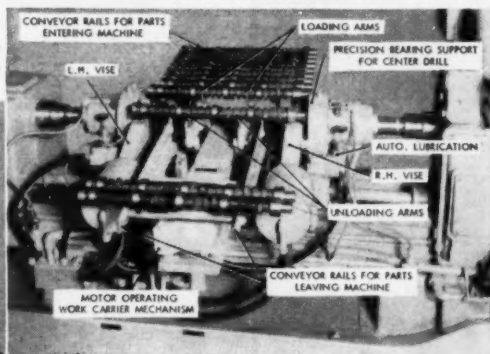


## AUTOMATIC HANDLING CUTS CAMSHAFT CENTERING COSTS

**PROBLEM:** To automatically handle and center both ends of eight-cylinder camshafts.

**SOLUTION:** The standard Lo-swing Model CS Automatic Drilling and Centering Machine selected for this job was equipped with a special Automatic Handling Mechanism and special vises. The close-up illustration provides a rear view of the vises, loading and unloading arms, and rails which guide the camshaft through the machine.

The camshafts arrive at the machine from the previous operation by conveyor and roll down to a fixed stop on the loading rails. At the end of the machine cycle, the center drills retract and the vises open, allowing the finished piece to drop into a stationary cradle, which is positioned slightly lower than the center line of the vise jaws. An electrical contact then starts the work carrier motor, imparting a rotating movement to the work carrier arms which handle a rough and finished piece simultaneously.

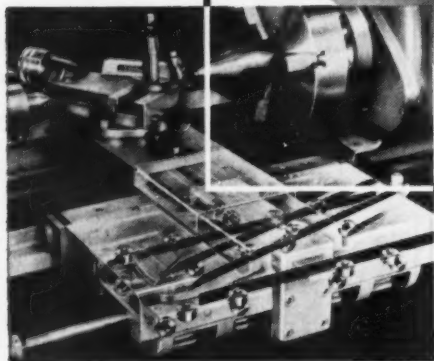
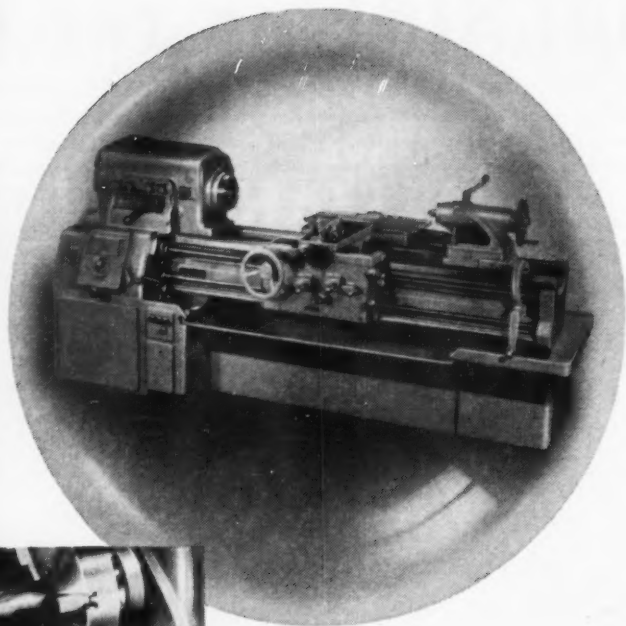


The unloading arms remove the finished piece, depositing it on the conveyor rails leaving the machine, while the loader arms, in their trajectory, pick up a rough part and lower it into the vise jaws where it is automatically clamped in position. The machine starting clutch is then automatically engaged and the part centered, which completes the cycle. The entire operation is automatic, no operator being required.

The close-up illustration shows a finished part being removed from the vises and a rough part just being lowered into the vise. The line drawing shows the details of the automatic positioning stop attached to the left hand vise. Seneca Falls engineers are at your disposal for solving your AUTOMATION problems.

## PRODUCTION COSTS ARE LOWER WITH Lo-swing

**BALL**  
**BEARINGS**  
 make  
 a product  
**BETTER**



Twenty New Departure ball bearings are used in the Monarch Machine Tool Company's antifriction bearing taper attachment. There are 12 single-row bearings, 8 double-row bearings. All are permanently lubricated.

Many advantages of the Monarch lathe taper attachment are—according to its maker—the result of New Departure **ball** bearings. For by their use, backlash, friction and lost motion are almost entirely eliminated . . . smoother, more accurate tapers are possible. And Monarch's taper attachment takes heavy cuts even when boring or turning acute angles, for **ball** bearings give rigid support under both radial and thrust loads.

Call your New Departure sales engineer. Have him show you how New Departure **ball** bearings make a good product even better!

NEW DEPARTURE • DIVISION OF GENERAL MOTORS • BRISTOL, CONN. • Plants also in Meriden, Conn., and Sandusky, O.

NOTHING ROLLS LIKE A BALL



**NEW DEPARTURE**  
**BALL BEARINGS**



# A Gold Mine of Carbide Tool information FREE

***Here are just a FEW of  
the topics in this  
up-to-date manual***

- Selection tables and recommended applications for carbide tools
- Recommended speeds and feeds
- Recommended lubricants
- Tips on how to get top performance from carbide tools
- Selection chart of relief and rake angles
- Carbide grade classification table
- And many other valuable charts and information

It's the new 88 page, 3 color Carbide Tool Manual & Catalog . . . just off the press . . . the most complete compendium of information ever issued in the carbide tool industry.

Not only is this a catalog of the famous ATRAX precision ground tools with engineering, dimensional and performance data on their complete line of End Mills, Reamers, Burs, Countersinks, Boring Bits and Drills . . . but it is an encyclopedic collection of useful information on carbide tools.

Don't delay a moment—send for your FREE copy now! Attach convenient coupon below to your business stationery.

THE

# ATRAX<sup>CO.</sup>

NEWINGTON 11, CONNECTICUT

The ATRAX COMPANY, Newington 11, Connecticut.

Please send me your complete 88 page 3-color Manual and Catalog of Carbide Tools with no obligation.

Name

Address

City  Zone  State

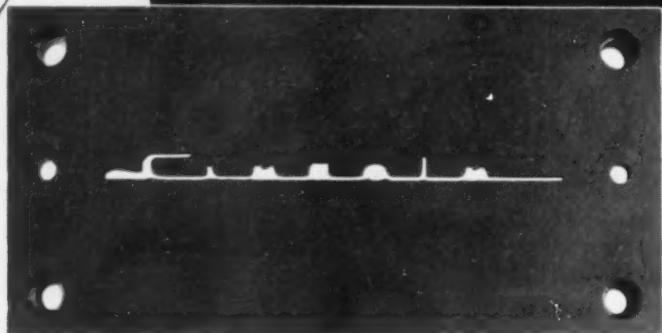
Company

Position





**can you make  
this trim die  
in eleven hours  
in your plant?**



FINISH TRIM DIE



ELECTRODE

**man hours:**

ELECTRODE MACHINING..... 8 hours  
SETUP..... 2 hours  
CUTTING TIME..... 1 hour

**we will show you how**

**elox** *corporation of michigan*

Booth 1342 at the ASTE Tool Show

732 N. Rochester Road • Clawson, Michigan

# TOOLS, TOO!

Eleven styles of top quality standard carbide tools . . . tipped with ADAMAS tungsten carbide in grades for steel, cast iron and non-ferrous materials. Here is the unbeatable team for your turning, facing and boring operations. Next time specify ADAMAS standard tools—and be positive of getting ADAMAS, the work-proved, job-engineered carbide.

None finer in the world!

Write for your new Adamas Carbide Tool Catalog AT53-A



# ADAMAS

**TUNGSTEN CARBIDE**

ADAMAS CARBIDE CORPORATION • KENILWORTH, NEW JERSEY

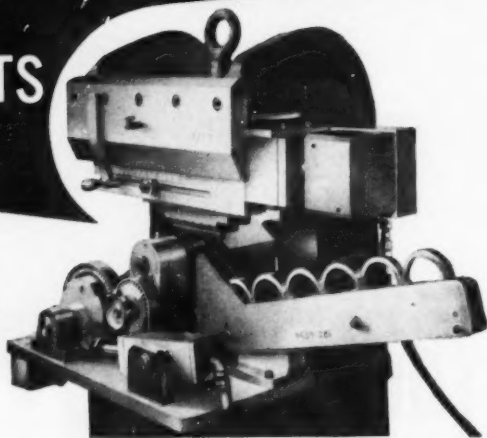
April, 1954


107


# YOU CAN CUT MARKING COSTS WITH...



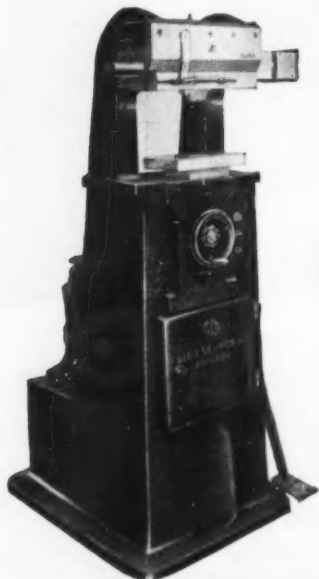
## GEO. T. SCHMIDT AUTOMATIC FEEDS



In many applications, thousands of components per hour are marked, with  automatic marking equipment. Feeding mechanisms are designed for a specific operation, custom tailored to suit your requirements.

Perhaps  specialists can design automatic equipment to solve your marking problems.

A trained marking engineer is at your disposal to help you modernize your marking operations and cut costs to a minimum.



**Model 175 Hydraulic**



The unit illustrated above marks the periphery of bearing races at the rate of 2400 to 3000 per hour. It is fed directly from automatic screw machines, and requires no operator.

***IF IT'S WORTH MAKING, IT'S WORTH MARKING.***

**GEO. T. SCHMIDT, INC.**

**1802 Belle Plaine Avenue  
Chicago 13, Illinois**

# A PROFIT PARADE...

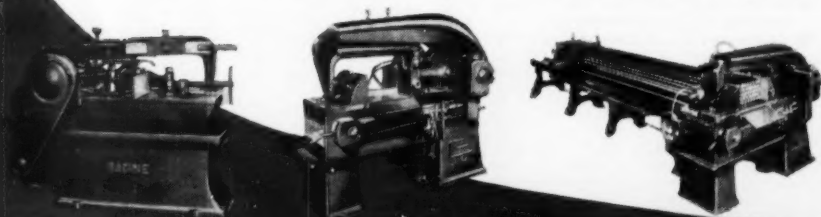


## ... FROM YOUR SHOP TO YOUR BANK

New, modern, RACINE Metal Cutting Machines step up your entire production. They save material — reduce cut-off time and lessen subsequent machining operation because they are so extremely accurate.

Savings in your metal cutting will help offset ever-mounting tax, labor and material cost. Late model RACINE Power Saws hit costs at the first stage in every metal working job — where the bar or billet is cut to size. All capacities — 6" x 6" to 20" x 20". Single purpose or fully automatic bar feed units.

Write us about your metal cutting needs and catalog of our complete metal cutting saw line. Address: **RACINE HYDRAULICS & MACHINERY, INC.**, 2054 Albert St., Racine, Wis.



# RACINE

# SANFORD

## SURFACE GRINDER

### MODEL MG

**For Dry or Wet\* Grinding!**  
**PRECISION • SPEED • SENSITIVITY**

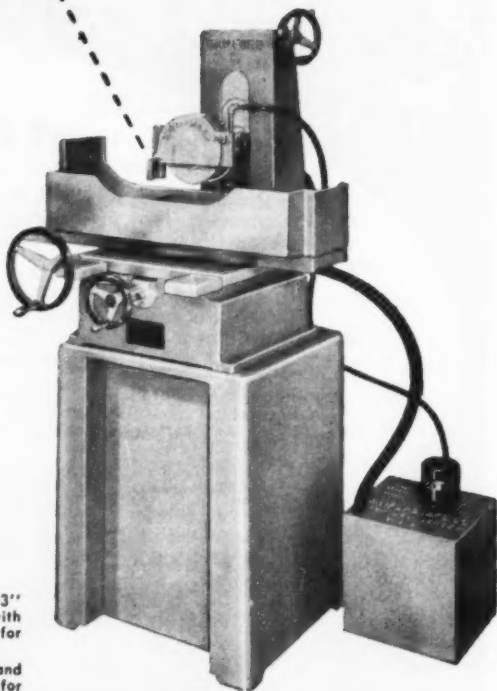
Built by manufacturers who concentrate on small grinders only, each Sanford Grinder is an individual project of time tested and proved basic design. Although modest in price, no quality undermining shortcuts are employed to reduce manufacturing costs. Constant repeat orders prove its acceptance.

This sensitive machine grinds to micro-inch accuracy with no vibration, with maximum dimensional stability. Here's why:

- Transverse ways are double Vee (VV) Mechanite inserts instead of flat surfaces which depend upon unstable jibs for alignment and accuracy.
- Needle, Ball and Oilite Anti-Friction bearings are used throughout.
- Alignments are electronically checked for accuracy.
- Precision slides are ground, lapped and hand spotted.
- Dials are large and legible.

**SPECIFICATIONS** — 8 $\frac{3}{4}$ " transverse — 13" longitudinal — 12" vertical under 7" wheel with Adapter. Approximate weight 630 lbs. Send for illustrated bulletin.

Replacement parts, special attachments and reconditioning facilities are available. Send for price list.



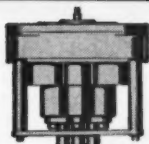
\*With optional equipment

# SANFORD

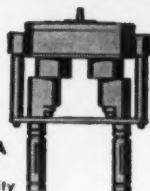
## MANUFACTURING CORP.

1026 Commerce Ave., Union, N. J.

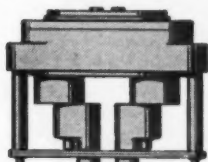
# HEADS to Solve Your Drilling, Tapping, Boring Problems



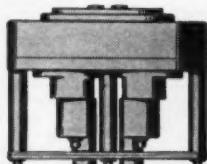
**Model ELA**  
1/4" Drill  
Capacity



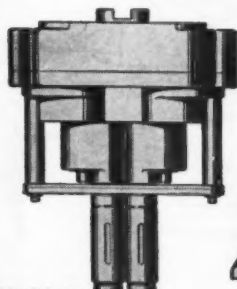
**Model LA**  
13/32"  
Drill Capacity



**Model LMA**  
5/8" Drill  
Capacity

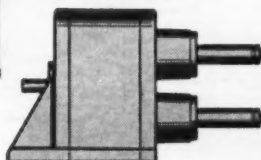


**Model MA**  
3/4" Drill  
Capacity



**Model HA**  
1 1/4" Drill Capacity

**Fixed Spindle Models**  
Size and Capacity  
as specified



## **WISCONSIN Adjustable Spindle**

Drill Heads completely gear driven . . . are available in 5 Standard Models, with 2 to 8 spindles and Drill Capacities from 1/4" to 1 1/4" . . . permit adjustment to any hole pattern. Adjustable Heads with 9 or more spindles are built-to-order.

## **WISCONSIN Adjustable Spindle**

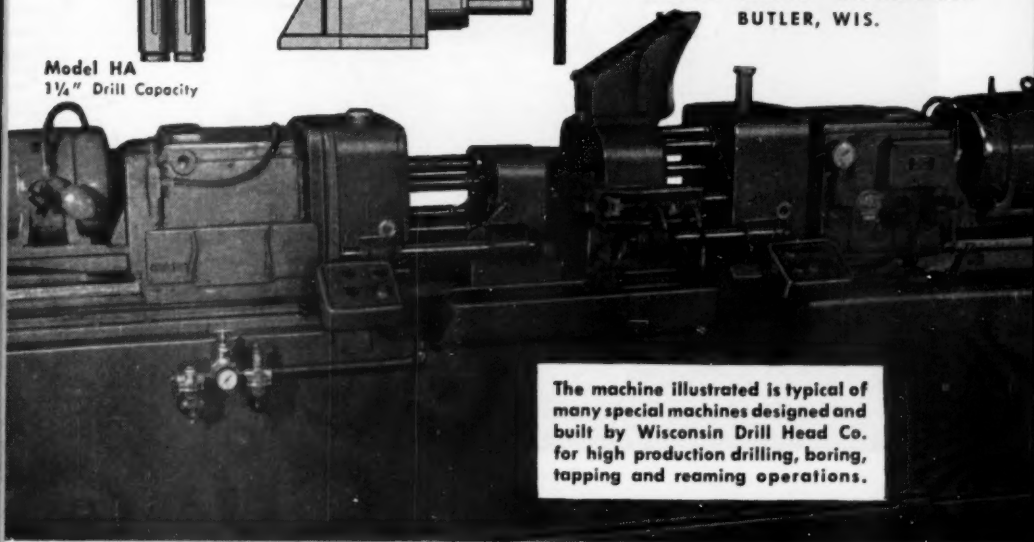
Drill Heads . . . have Two-Piece Positioning Templates for Fast, Accurate Set-ups that stay put.

## **WISCONSIN Fixed Spindle**

Drill Heads are built to special order in any size or capacity specified for Drilling, Tapping, Reaming and Boring.

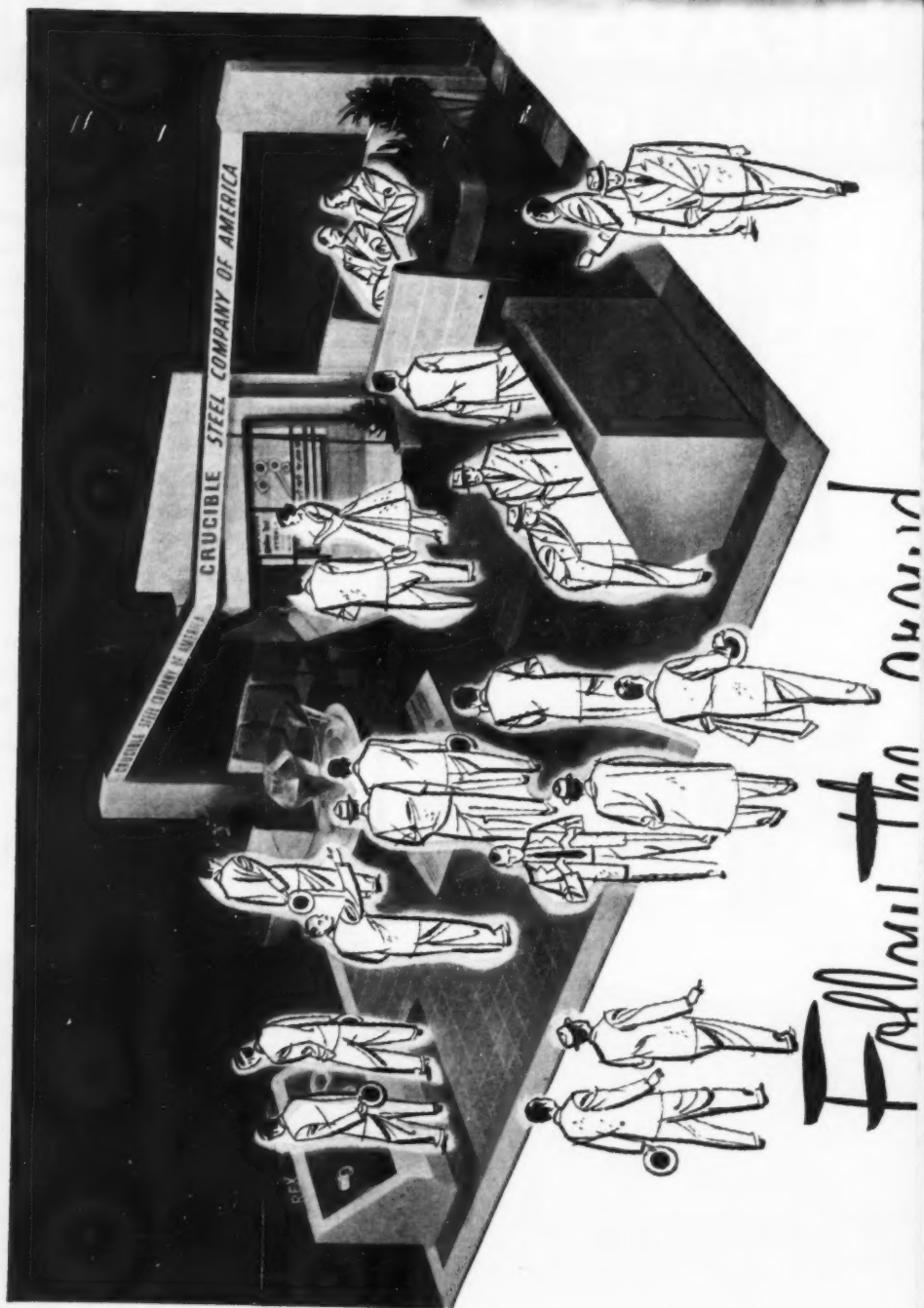
Look to Wisconsin for Drill Heads to solve Your Problems.

**WISCONSIN**  
**DRILL HEAD COMPANY**  
BUTLER, WIS.



The machine illustrated is typical of many special machines designed and built by Wisconsin Drill Head Co. for high production drilling, boring, tapping and reaming operations.





Fell on the ground

## TO THE BIG CRUCIBLE EXHIBIT AT

## THE ASTE SHOW...

**BOOTH 626**

**American Society of  
Tool Engineers Show**

Convention Center, Philadelphia, Pa.

**April 26-30**

There are always worth-while things to see at the Crucible exhibit...and there'll be even more in the way of helpful material this year. Among other items, you'll find new exhibits and information on Rex high speed steels, tool steels — including hollow tool steel bars — and other special purpose steels.

You'll find, too, a group of experienced Sales Engineers and technical people who can help you with your application problems. So be sure and follow the crowd to the Crucible booth. We'll look for you.



**CRUCIBLE**

first name in special purpose steels

54 years of *Fine* *steelmaking*

**TOOL STEELS**

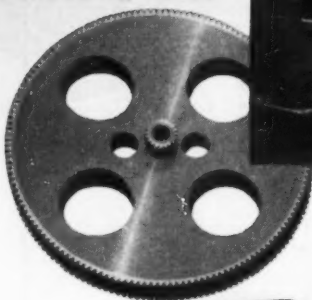
CRUCIBLE STEEL COMPANY OF AMERICA • TOOL STEEL SALES • SYRACUSE, N. Y.

# FINE PITCH

## THE FELLOWS



**Up to 3 inches P.D.** describes the range of the Fellows Fine-Pitch Gear Shaper—fast-stroking (up to 2000 per minute) for extremely fine-pitch (100 and even 200).



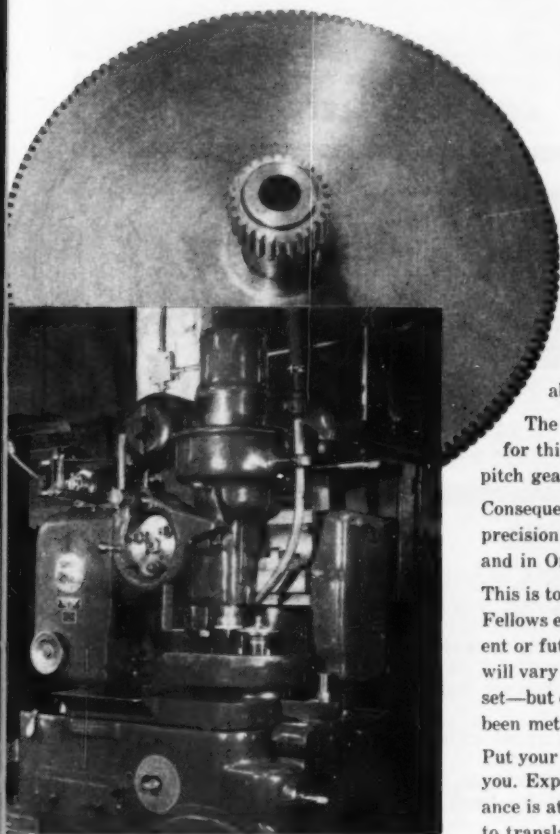
THE

*Fellows*

# METHOD

# FOR ALL SIZES OF GEARS

*fine pitch*



**Automation**—the instrument control of manufacture—ushers in a Second Industrial Revolution. It is all about us, already!

The *super-precision* of control instruments for this new 'age' requires *quality* in the fine-pitch gear components.

Consequently there is really no substitute for the precision inherent in the Gear Shaper Method—and in Original Fellows Cutters.

This is to remind all in the instrument world that Fellows equipment covers the size-range for present or future design requirements. Cost per piece will vary with the closeness of the tolerance limits set—but even the most precise specifications have been met.

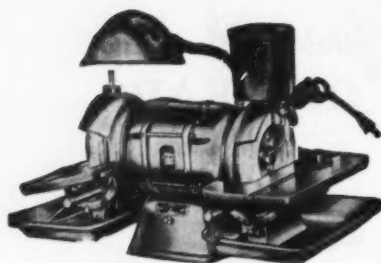
Put your problem up to the Fellows Office nearest you. Experienced, intelligent, cooperative assistance is at your command—and also the machines to translate promise into performance.

**Over 3 inches P.D.** the Fellows 7-Type Gear Shaper extends range on fine-pitch work to 7 inches. Unparalleled versatility and quick change-over sets your shop up for economical small-lot jobs as well.

## GEAR SHAPER COMPANY

*Head Office and Export Department: 78 River Street, Springfield, Vermont.*

*Branch Offices: 319 Fisher Building, Detroit 2 • 5835 West North Avenue, Chicago 39.  
2206 Empire State Building, New York 1.*



## Special grinder FOR CARBIDE TOOLS

BALDOR Grinder No. 500—built especially for sharpening carbide tools quickly and accurately. Reversible  $\frac{1}{2}$  h.p. capacitor type motor, 3450 rpm; heavy shaft, large ball-bearings. Dynamically balanced armature. Motor withstands repeated overloads. Protractor at each end of grinder. Complete as shown at left ... **\$149.20**

**ASK FOR BULLETIN 341-C**

# Baldor

*balanced*

**BALL-  
BEARING**

## HEAVY DUTY GRINDERS

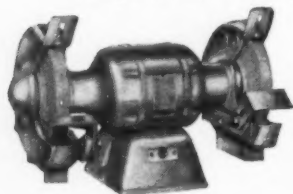
### BENCH and PEDESTAL TYPES TOTALLY ENCLOSED MOTORS BEARINGS LUBRICATED FOR LIFE

BALDOR Grinders are built for heavy duty, precision grinding in shops and factories. The motors (built by BALDOR) are totally enclosed, splash-proof and protected from dirt, grit and metal particles.

Wheels and rotors are accurately balanced to avoid vibration. The ball-bearings are lubricated for life.

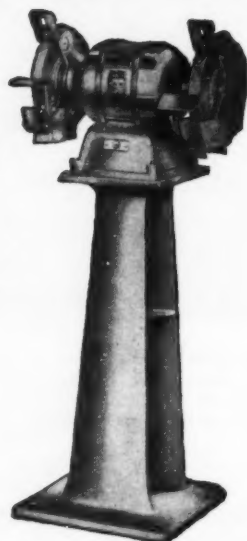
The BALDOR line of grinders includes both bench and pedestal types—with 6" to 12" wheels. Each grinder is fully guaranteed.

*Complete details and prices in Bulletin 321-H*



★ **ASK FOR  
BULLETIN 321-H**

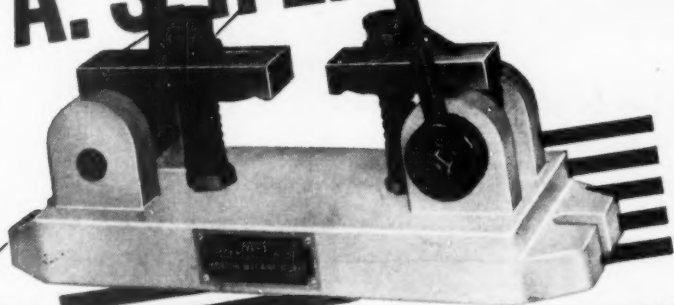
**BALDOR ELECTRIC CO.  
4368 Duncan Ave.  
ST. LOUIS 10, MO.**



**MORTON**

*Fixture Clamps*  
AND COMPONENTS

**MEET MORTON  
BOOTH 113  
A. S. T. E. SHOW**



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TODAY!**



MORTON is recognized throughout the industry for the development and manufacture of the most economical and highest quality Fixture Clamps and Details, Jack Locks, Cam Locks, Hand Knobs, Hand Wheels, Steel Ball Handles, Soft Chuck Jaw Blanks, Fixture Cams, Alloy Set-up Studs, Rest Spherical and Plain Color Nuts, Quarter Turn Screws, and many other precision made of heat treated selected steel, and many other types to fit the most exacting requirements of any of our Component Parts.

**MORTON MACHINE WORKS**

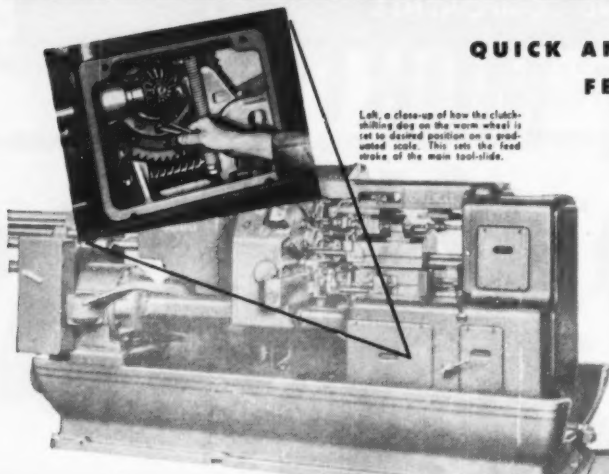


# GREENLEE

*Automatic*

## QUICK AND EASY FEED STROKE

### ADJUSTMENT

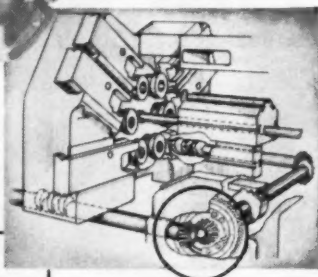


Left, a close-up of how the clutch-shifting dog on the worm wheel is set to desired position on a graduated scale. This sets the feed stroke of the main tool-slide.

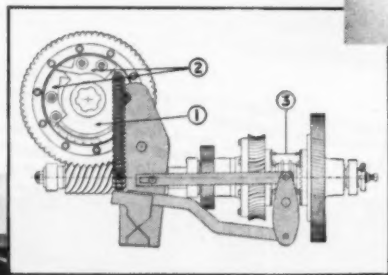
On Greenlee Automatics, main tool-slide feed stroke adjustments are made by adjusting only one dog on a graduated worm wheel, as illustrated by the inset picture at the left. The details of this arrangement, and particularly the relation of the worm wheel to the main tool-slide drive, are shown and explained in the other pictures and captions.

## Changes can be made in 5 minutes

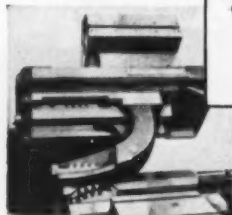
Precise adjustments of the main tool-slide stroke can be made easily in less than five minutes. To save time in making preliminary settings, two additional scales are provided, one on each side of the tool-slide, with graduations corresponding to those on the worm wheel.



The drawing at the right shows how the clutch, worm and worm wheel, and clutch shifting levers are related. Numbers indicate (1) the graduated worm wheel, (2) the clutch shifting dogs, and (3) the main drive clutch.



At the left is a view of the tool-slide removed and tilted back. The intermittent feed gear provides a full stroke each cycle, with fast approach and a smooth shift into feed. The main clutch is shifted automatically.



The cutaway diagram above shows, in the circle, the location of the graduated worm wheel on the end of the shaft that carries the intermittent feed gear.

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Literature



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1834 MASON AVE., ROCKFORD, ILL.

MACHINE and TOOL BLUE BOOK

# BURGMASTER

**CAN INCREASE  
YOUR PRODUCTION**

**AS MUCH AS 50%...with  
LOWER COST PER PIECE MACHINED**

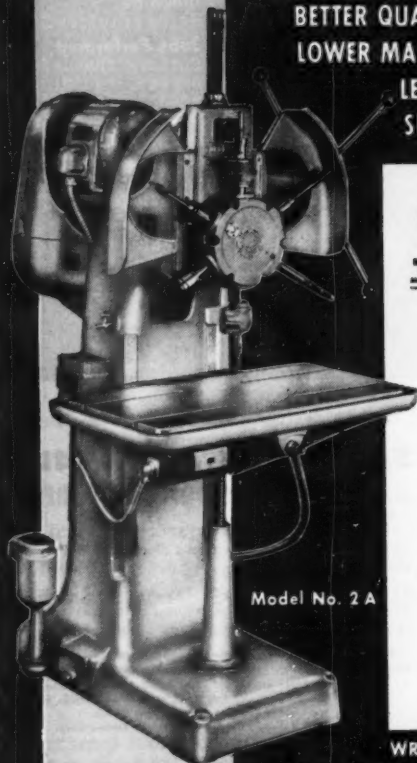
**BETTER QUALITY OF PARTS**

**LOWER MAINTENANCE COST**

**LESS FLOOR SPACE**

**SIMPLE SET-UP**

*too!*



Model No. 2 A



THE  
BE AUTOMOTIVE  
CORPORATION  
ANN ARBOR, MICH.

Manufacturers of Automotive Parts and Service Tools

August 29, 1953

Burg Tool Manufacturing Co.  
3743 Durango Avenue  
Los Angeles 34, California

Attn: J. L. Burg, Vice Pres.

Gentlemen:

We have your letter of August 12, 1953. The performance of the Burgmaster, Model 2A, is satisfactory and we have had a minimum of service problems with it. As far as production figures are concerned, we wish to advise that the machine has been converted to semi-automatic operation and consequently it can not be compared to our previous methods. Under the semi-automatic operation setup our operator can run two machines and give us about an 80% increase over the old four or five setups on one table drill press.

As our production increases, of course we will need additional machines which will be available in the future.

We highly recommend this machine for use in both shop-run setups and line-run setups, as the setting up and operation is so simple that it does not consume very much time.

If there is any additional information on the Burgmaster line, we would appreciate your sending it to us as we would like to keep up on the latest developments.

Very truly yours,  
EIS AUTOMOTIVE CORP.

J. L. BURG

MB:shaw/ew

"The Brake Parts Line"

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**SOME MFG. REP'S TERRITORY STILL AVAILABLE**



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You, too, can

## **SPEED UP**

### **METAL-CUTTING JOBS**

Like This Famous Industrial Plant Does



Report From  
Allis-Chalmers  
Manufacturing Co.  
Milwaukee Plant

#### **Machine**

Kling Friction Saw

#### **Jobs Performed**

Cutting channels,  
angles, round,  
square and flat  
bar stock.

#### **Average Cuts**

##### **Per Day**

1000 to 1300 per  
8 hours

#### **What Does It Replace?**

Kling Friction  
Saw in use from  
January 1928 to  
July 1953.

# **Kling**

## **HIGH SPEED FRICTION SAWS**

cut cutting-time IN THE "BEST OF COMPANIES!"\*

Can you cut 24" 100 lb. I-Beams in 28 seconds...15" 55 lb. Channels in 15 seconds...8" x 8" x 3/4" Angles in 11 seconds? These are only a few examples of what the Kling High-Speed Friction Saw is doing daily in many of the country's most important metal working plants. No wonder Kling Machines are attracting "top-level" attention!

Friction Sawing works differently—cuts metal by generating heat through friction, on to the part to be cut, at a rate faster than the part can absorb heat. Kling Friction Saws cut all types of steel, hard or soft, large

or small, in any shape, without distortion, and without change of blade or set-up.

The average Kling Friction Saw blade will give a full day's production before requiring redressing, thus eliminating costly downtime and saving on tool costs.

\* The following are some of the companies using Kling Machines:  
American Brake Shoe Co. Bethlehem Steel Co., Inc. Carrier Corporation  
International Harvester Co. Jones and Laughlin Steel Corp.  
Kaiser Steel Corp. Link-Belt Co. Madsen Iron Works, Inc.  
Maryland Dry Dock Corp. Shell Oil Co.  
Wabash Railroad Co. Westinghouse Electric Corp.



Complete Friction Sawing Information FREE! Write for 12-page Bulletin No. 9200 that tells you in detail, exactly how Friction Saws work and what they can do in your shop to save you time and money.

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473MM

*Since  
1892*

# **Kling**

**...an investment in speed!**



Condensator Shear  
Punch & Copers



Double Angle Shear



Rotary Shear



Punches



Plate Bending Roll

**HOW  
DUPLICATE  
TOOLING...  
AND A  
FASTERMATIC...**



*On this double-tooled Gisholt 1F FASTERMATIC, turret faces 1-2-3 (and 2 cross slides) complete a part. Faces 4-5-6 (with same cross slides) then complete second part.*

# doubled production!

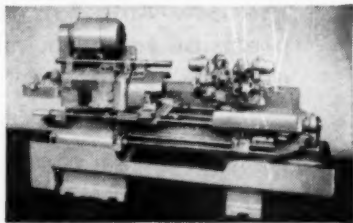
The time *and* unit cost for machining these cast iron pulley flanges were cut in half when the FASTERMATIC with double tooling took over the job.

Just three turret faces were needed to complete the machining and threading on each part. Therefore, tooling is repeated on the other three turret faces so that *two* parts are finished with each revolution of the turret. Production is doubled over the old method . . . time lag is cut to a minimum . . . there's twice the time between tool changes.

This smart setup illustrates one of the many ways FASTERMATIC Automatic Turret Lathes give you greater efficiency and lower costs on a broad range of jobs. And one operator can usually handle two or more machines. Ask for the facts.



*Floor-to-floor time for these pulley flanges is down to 1.75 minutes. Duplicate tools and collapsing taps on the turret rough and finish the bore, chamfer and cut threads. Front and rear slides shave the angle and form the radius on the O.D.*



Gisholt 1F FASTERMATIC Automatic Turret Lathe

THE GISHOLT ROUND TABLE represents the collective experience of specialists in the machining, surface-finishing and balancing of round and partly round parts. Your problems are welcomed here.

**GISHOLT MACHINE COMPANY**  
Madison 10, Wisconsin



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## "Auto-Tap" TRADE MARK LEAD SCREW TAPPING HEAD for Your Drill Press

### *New Features*

- ★ Quick-change lead screw
- ★ New type 'V' clutch
- ★ Positive depth control
- ★ Positive-drive tap

Model 205 for #0 to 5/16" taps

Model 210 for 10-32 to 3/4"

The new Auto-Tap Head guarantees precision tapping, more production, and less spoilage with unskilled help.

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959D West Grand St., Elizabeth, N. J.

See the NEW Auto-Tap Head at the ASTE Show—Booth 1909



here's  
your  
most  
versatile  
grinding  
machine!



**Strand**

FLEXIBLE SHAFT  
MACHINE

4 and 5

Only type on the market with  
**SPEED GEAR DRIVES**

Famous Strandflex 4 and 5-Speed Gear Drive Machines mean faster speed selection from direct drive head, no countershafts. No changing pulleys or drive belts. No tools needed. Select operating speed with little more than the flick of a finger.

More versatile because wider speed range means you can use your Strandflex for grinding, rotary filing, wire brushing, deburring, other finishing operations. New High Speed Attachment, also exclusive with Strand, gives spindle speeds up to 27,000 RPM, suitable even for high speed steel and carbide tools. Constant-speed motor gives constant operating speed, regardless of load.

Easier to use because Strand Quick Change Handpiece lets you change tools in seconds without using wrenches. Special locking button requires only a simple PRESS-PULL-SNAP! And remember, with Strand, the operator lifts the tool only—not the heavy motor.

Full Strand line includes direct drive and countershaft machines up to 3 HP. Also complete line of accessories and tools. Find out today how these versatile production tools can help you boost production without investing in high cost, high maintenance equipment. See your Strand Distributor . . . or write direct to us for Catalog 231A.

**HEAVY DUTY UNITS AVAILABLE!**  
Five operating speeds.  $\frac{3}{4}$  or 1 HP motors. Strandflex patented gear head drive. Plenty of power and speed when you want it!

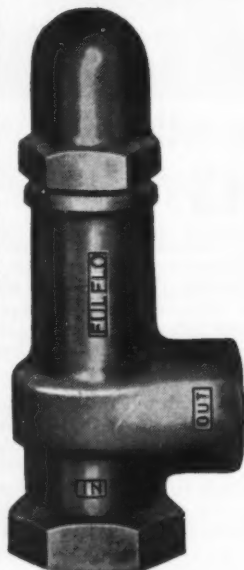


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CORPORATION**



TRADE MARK  
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 REG. U.S. PAT. OFF.  
**VALVES**

**By-pass,  
 oil-relief  
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NON-CHATTERING, TOO . . . because the cylindrical piston closes off the port in a shearing manner.

FOR . . . machine tool hydraulic mechanism oil-burning equipment, rams, presses and Diesel engines.

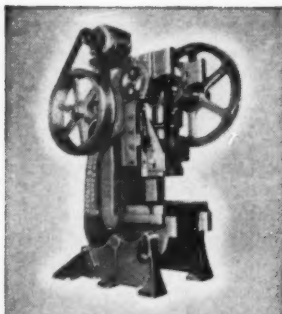
Pipe sizes: 1/4" to 2"

Write — on your letterhead, please, for personal copy of

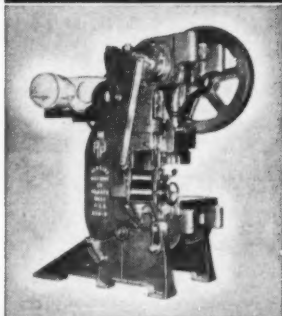
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 Specify it for Valves, for Pumps or for both.



**THE FULFLO SPECIALTIES CO. Inc.**  
 PUMP AND VALVE MANUFACTURERS  
 BLANCHESTER, OHIO



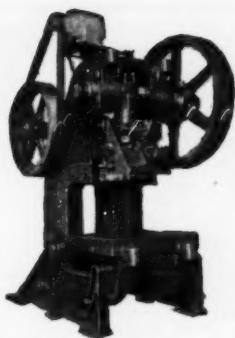
#700 B GEAR PRESS



650-B PLAIN FLY WHEEL

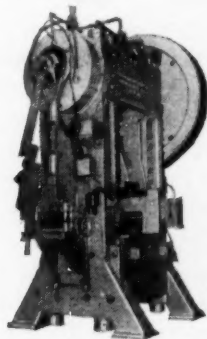


No. 10M FLYWHEEL PRESS



No. 800B GEARED INCLINABLE PRESS

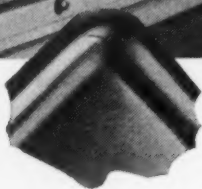
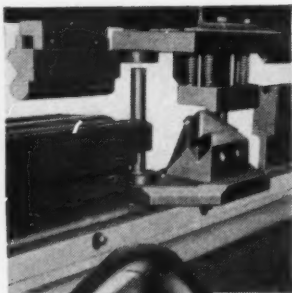
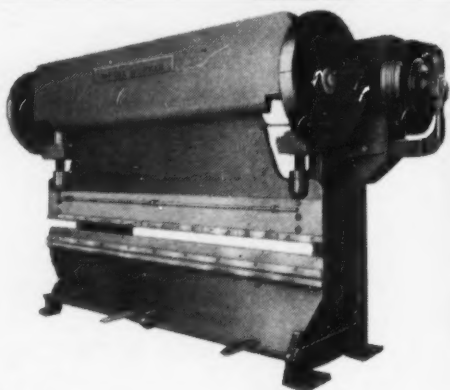
Illustrating a few of the many types and sizes of standard Perkins Presses. Presses built to customers' special specifications.



No. 12-H-36 STRAIGHT SIDE, SINGLE CRANK  
TIE-ROD CONSTRUCTION PRESS  
CAPACITY 200 TONS



**PERKINS MACHINE CO.**  
**WARREN, MASSACHUSETTS**



THIS *Airtherm* **METALWORKER**  
**POWER PRESS BRAKE**  
DOES *Triple Duty* ON CORNERS

An Airtherm METALWORKER Power Press Brake "cuts production corners" for a convector manufacturer. The three dies on one brake step up production on convector cabinet top panels. One man on one brake handles the offset bend, two radial bends and the corner forming.

This is another example of how the versatile METALWORKER can be adapted to meet individual produc-

tion requirements on operations on all kinds of bending, forming and multiple punching... from 22 ga. to 3/8-inch plate.

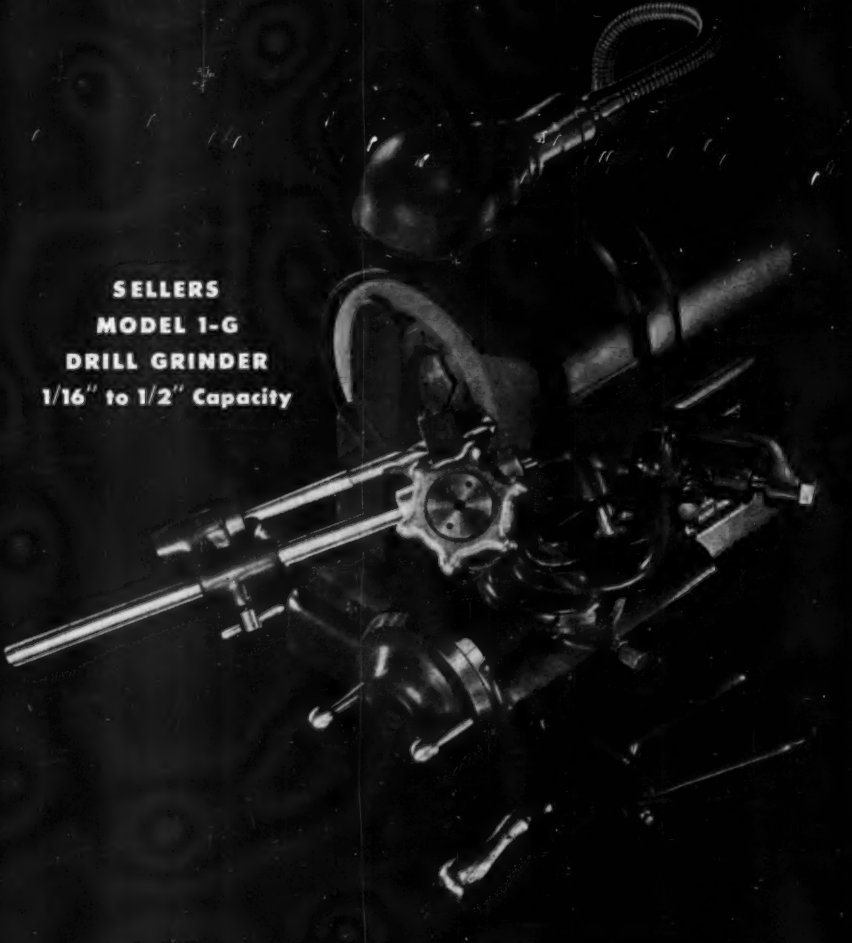
The METALWORKER's fast operation and quick brake action speed production runs. The rugged single unit construction is built to take continuous full capacity operation, and assures a long life of top performance. Write for catalog 908.

We can handle your requirements for standard dies. Send us your specifications; we'll give our recommendations without obligation.

Machinery Division *Airtherm* **MANUFACTURING CO.**

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*Serving the Metalworking Industry since 1931*



**SELLERS  
MODEL 1-G  
DRILL GRINDER  
1/16" to 1/2" Capacity**

***Nothing will do so much to reduce  
your drilling cost for so small an  
investment as a Sellers Drill Grinder!***



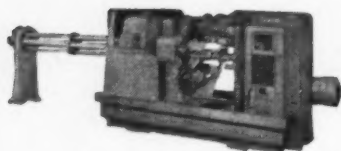
**C O N S O L I D A T E D  
M A C H I N E T O O L C O R P O R A T I O N**

WHOLLY OWNED SUBSIDIARY OF FARREL-BIRMINGHAM COMPANY, INCORPORATED

**ROCHESTER, NEW YORK**

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with Warner & Swasey Multi-Spindle Automatics



Automatic Bar Machines

1 1/4" Standard Capacity

2 1/4" Oversize Capacity

and now, newly introduced

3/4" Bar Capacity

1 1/4" Bar Capacity

Automatic Chucking Machine 6" Swing

**J**UST MAKE a simple setting on a Warner & Swasey—and there you have your new feed stroke, clearly indicated on a graduated scale. Yes, it's as easy as that! All feed strokes are quickly available for both longitudinal and cross slides. No more need to sacrifice cycle time because the "right" cam is not on hand or because a cam change would take too long. You always get your exact feed stroke quickly on Warner & Swasey Multi-Spindle Automatics.



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IT'S SIMPLE TO SET UP!



YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS WITH WARNER & SWASEY MACHINE TOOLS, TEXTILE MACHINERY, CONSTRUCTION MACHINERY

# Featured **IN THIS ISSUE**

<b>ASTE Show: Papers, Programs, Conferences .....</b>	<b>194</b>
<b>Floor Plan of Convention Center .....</b>	<b>228</b>
<b>Exhibitors, Booth Numbers, Products, Personnel .....</b>	<b>233</b>

**Don't Break Your Back . . . Use Power-Operated Holding Devices, part 2, by H. L. Stewart.** The success or failure of a fluid power application depends largely on the design of the circuit. On simple clamping devices the circuit arrangement is simple, whereas in the multiple station machines it may be quite complicated. The circuit must operate with exact precision and must be quick acting. This concluding part of Mr. Stewart's article deals exclusively with various kinds of circuits and the design. Page .....155

**Grinding Glass Fiber-Reinforced Plastics, by R. T. Argy.** These glass fiber-reinforced plastics are either already in use or are being considered as primary structural materials in almost every field of construction. Research and experimental work have uncovered a wealth of information about the handling of these materials. Another contribution to the grinding of these materials is now available in this article. Many new products have been placed on the market to aid in the grinding of glass fiber-reinforced plastics. Page .172

**When Drilling 1½" to 5" Holes Spade Drills are Economical . . . Efficient, by Wm. F. Schleicher.** A standard holder has been developed into which a wide variety of differently sized spade drills can be fitted; thus 256 drill sizes can be accommodated in only eight holders. Holes up to 5" in diameter can be made

with spade drills. Because of the design of several of the drill holders, it is possible to drill shallow, medium or deep holes. Some of the holders are provided with oil holes for drilling deep holes. Page .....182

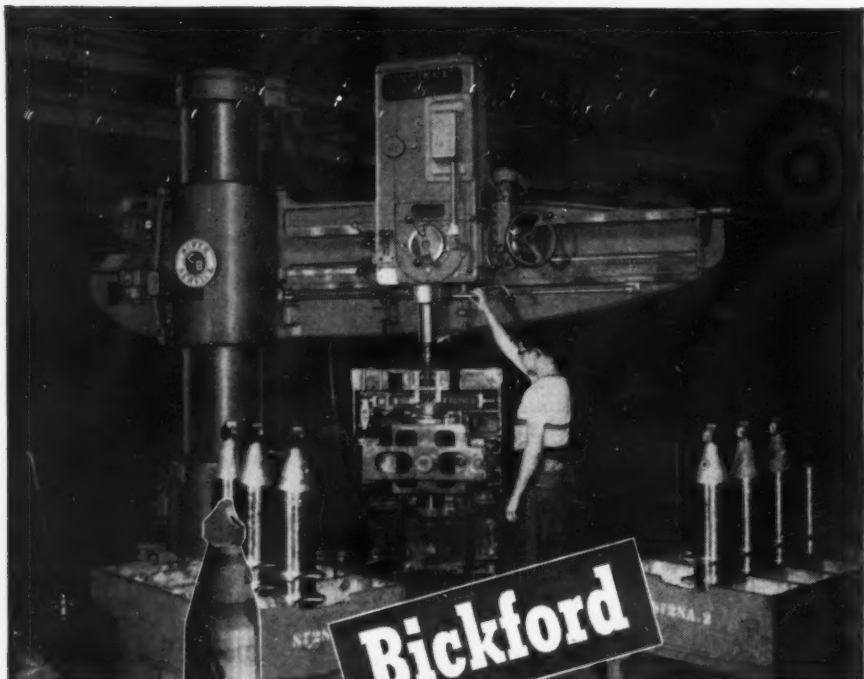
**BLUE BOOK'S "Know-How" REFERENCE SHEETS.** Two pages of reference sheets this month are concerned with Rules of the Circle, as well as formulae for finding areas, volumes, etc., of variously shaped objects. Page .....191

**ASTE Exhibition: Program of Conferences, Papers and Panel Discussions.** A complete list, as well as the time and meeting place, of papers to be read and discussions to be held in conjunction with the exhibition. Names and company affiliation and photos of speakers are included. Page .....194

**Floor Plan of Convention Center.** The floor plan of the exhibition and the booths of the various exhibitors are given. Page .....228

**Exhibitors.** A complete list of all exhibitors available at press time is given. Also included in this section are the booth numbers of exhibitors and the names of the various people who will be in attendance at the booth. The new products never before shown, as well as many standard products, are discussed in this section. A photograph, where available, is included. Page 233





Photos courtesy—  
The Cleveland Pneumatic  
Tool Company, Cleve-  
land, Ohio.

**Bickford**  
gives complete satisfaction...

The convenient centralized controls, the wide range of speeds and feeds, and the high visibility head of this Cincinnati Bickford Radial Drill are all contributing to fine performance on this job.

The Cleveland Pneumatic Tool Company say "Performance and ease of handling are all that could be desired."

On this cylinder for an aircraft nose, type landing gear, drilling, reaming and spot facing operations are being done.

Cincinnati Super Service Radial Drills are accurate, powerful and profitable in the shop.

Write for Bulletin R-29.



RADIAL AND UPRIGHT DRILLING MACHINES

.... **CINCINNATI  
BICKFORD**

**THE CINCINNATI BICKFORD TOOL CO.**

Cincinnati 9, Ohio, U.S.A.

**AS THE**

*Editor*

**SEES IT**

### **Automation?**

Everyone is talking and writing about automation—carried to its logical conclusion—the automatic factory. Not only technically qualified personnel, but the laymen are talking about this industrial genii. All that needs doing is pressing ever so lightly with the little finger on the little button and wheels and gears rumble, heads advance, and metal is removed. After the initial push manpower ceases to be utilitarian and becomes decorative. This is splendid! This will save industry much money!

I think any automatic equipment which will increase production and reduce costs is vitally important and should be investigated by many more industries than are showing any concern with it at present. But the idea that automation is the answer to all production problems is misleading.

People who talk automation as the alpha and omega of all striving are talking through their hats. They forget that the large body of metalworking plants will never find it economically feasible to install special machinery, their problems are of a different nature. They do not need automation as much as they require more efficient utilization of standard equipment, be it machine tools or accessory equipment. The problems of industry are manifold; for example:

how to prevent the needless murder of drills and taps; how to utilize the capacity of machine tools to the utmost; how can loading and unloading be graduated from the Middle Ages; how to select most efficient standards and methods (a big problem); and so ad infinitum.

Reading this current issue and noting the thousands of different tools and accessories which will be featured at the tool show makes me realize the solution to industry's problems are frequently identified with small (in physical size) equipment. Proper utilization of newly developed accessories, many of which will be found at the show, can do wonders towards reducing costs. If you manufacture in batches of hundreds or less you'll probably find it more economical to investigate methods of getting stuff off and on the milling machine faster than to look into automation. (If you've thousands of parts to produce this is not for you; you need a little finger and a little button.) Although looking is painless, costs no money and is good clean fun, you might save money checking closely into the garden-variety of machines and equipment at the ASTE Exposition. Rest assured, somebody has just the thing you need, all you must do is find it.

If you get tired of looking, stop in booth number 913 and we'll rest our feet together and solve the world's problems.

*William F. Schleiser*

# Ross

## COMET



- **A small, lightning-fast air valve**
- **One moving part—balanced spool**
- **Direct operated**

*Write for Bulletin No. 308*

**Ross EnginAIRing — Leads in Air Controls**



# Ross

## OPERATING VALVE COMPANY

108 E. GOLDEN GATE AVENUE • DETROIT 3 • MICHIGAN

## LAST MINUTE WASHINGTON NEWS

★★★

by Arnold Kruckman

Washington Correspondent



The following statement has just been issued by the U. S. Senate Small Business Committee: "The machine tool industry alarm over leasing of government-owned tools subsided when it became known that the Office of Defense Mobilization was requested by the Department of Defense to hold up the planned leasing of \$5 million worth of equipment to a company in Houston, Texas. The company wanted to use the defense production tools to turn out civilian products. It seems probable that this year's production will fall at

least \$200 million short of the \$1.2 billion the industry shipped in 1953. Inasmuch as the government owns 20% of all currently available machine tools-equivalent of three to four year's industry output-machine tool builders are dead set against any renting of government-owned tools. This threat, the industry feels, is implicit in a clause of DMO VII-4 issued Oct. 9, 1953, which reads: 'Department of Defense-owned tools and equipment shall not be leased for non-defense production except when plans for leasing have been submitted by the Department of Defense and approved by the Office of Defense Mobilization.'"

Some 300 obsolete machine tools are to be sold on a competitive bid basis, the Department of the Air Force announced. The tools consist of milling machines, lathes, grinding machines, and the like. Invitations to bid will be issued within the next few days for the sale which will be conducted on March 23 at the Air Force Departmental Industrial Equipment Reserve Storage Site No. 6, P.O. Box 82, Marietta, Ga.

There are no normal politics today. Government is big business. In details at the polls, and in all the informal as well as formal phases of the practice and organization of political activities the cooperation of business people is vital; chaos in some of the affairs of government eventually can be solved effectively only by trained business people. In this sense business includes those who give service in the professions because the professions, like industry and commerce and finance are part of business.

In the Department of Commerce there is a Metal Working Division in the office of the Business and Defense Services Administration. The assistant chief of the Defense Action and Planning Section in this division is Harry E. Hawkins whose office is in Room 4015A of the main Commerce Building. His

telephone is Sterling 3-9200, Extension 593. Hawkins is the machine tool specialist in this part of the government. It probably is correct to say that he is the major machine tool specialist in the Department of Commerce. He wishes to know what the industry feels the government, in his department, can do on its behalf. And he probably can give the industry more accurate information about the ideas of the government in regard to machine tools than any other official, with the possible exception of some of those who are in the Pentagon. However, Hawkins, as assistant chief of the Defense Action and Planning Section, presumably has the best information about what may be needed by Army, Navy, Marine Corps and the Air Force, and those who supply them with their needs.

There is another official in commerce who has a very good knowledge of the machine tool industry who may be found in Room 1868A, and whose telephone, also, is Sterling 3-9200, Extension 2997. His name is Walter Haidar. He is a member of the Bureau of foreign Commerce, and is rated as a business specialist. He probably has the best information available about export and import aspects of machine tool business.

Apparently Europe is developing an increasing need of machine tools in unexpected places. So is Asia. Greece wants machine tools and is buying them with funds supplied by the Foreign Operations Administration. Purchases are made by the Supreme Procurement Committee (A.E.P.Y.S.) 9 Paparigopoulou St., Athens, Greece. There are also officials of the Greek government in Washington at the offices of the Greek government Foreign Trade Administration, 729 Fifteenth Street, N.W., Washington, D.C.; and some information may be obtained from the Greek consulates which are located in Boston, New York, Chicago, New Orleans and San Francisco.

It will probably be surprising to learn that Korea is actively in the market for machine tools. Negotiations are conducted with the United Nations Command Economic Coordinator in Seoul, Korea. In some cases the items are handled by U. S. Government agencies. Probably the most frequent and direct information may be obtained in this country by getting in touch with the Commercial Intelligence Div., Bureau of Foreign Commerce, U. S. Department of Commerce, Washington 25, D.C., or with the Office of Public Reports, Foreign Operations Administration, Washington 25, D.C. Some transactions are handled by the purchasers in South Korea through foreign traders in this country.

Iran also is in the market for various wares. The purchasing is done with Foreign Operations Administration funds by the procurement officer, U. S. Operations Mission to Iran, care of American Embassy, Tehran, Iran; and they want the prices quoted in U. S. dollars. In Africa the Nigerians are developing business and are buying the articles required to develop their economy, so far as possible, in this country. The Foreign Operations Administration in Washington has announced that the Nigeria Trade Journal, compiled and published by the Department of Commerce and Industries, Lagos, Nigeria, appeared late in 1953 and is of extreme interest. It will come out every quarter during 1954. It may be had by making inquiry of the Crown Agents' Representative, 1800 K Street, N.W., Washington 6, D.C. Apparently the Washington officials will make arrangements with

trouble-free  
trio...



**Lamina**

## GUIDE PIN BUSHINGS

*with exclusive  
bronze-on-steel design*

Gone are the headaches and high costs of bushing failures in your die sets when you install Lamina Guide Bushings.

Exclusive design\*—long-wearing hardened steel with free-running bronze on the I.D.—adds thousands upon thousands of press strokes to the life of Lamina Guide Bushings. This means important savings both in maintenance costs and lost production time for bushing replacements.

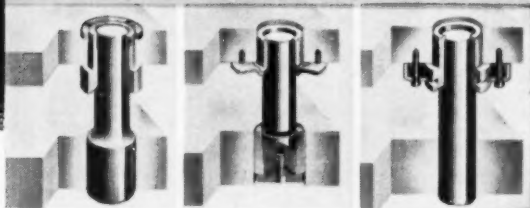
Even more important, with their precision running mates—Lamina pins—these guide bushings consistently boost die life through better die alignment. This means more parts per die sharpening, better quality parts, lower cost per part. Big savings all around.

As illustrated at left, Lamina Bushings come in three styles and all popular sizes. Specify them when ordering die sets. Contact any die set manufacturer or write direct to us for our new free illustrated bulletin and price list.

\*Patent Pending

SPECIFY **Lamina** GUIDE PINS, TOO!  
... for precision ... for longer life.

Lamina Guide Pins are available in the three styles shown and in all popular sizes. Like Lamina Guide Bushings they are ground to gage-maker's precision. Made of water-hardening tool steel, they wear longer and eliminate "Mushrooming" when assembled in the shoes.



SHOULDER PINS

REMOVABLE PINS

STRAIGHT PINS

**Lamina**  
DIES AND TOOLS, INC.

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Nigeria for the transmission of the publication. Incidentally, we are still buying 76 critical metals, and other materials, for the strategic stockpile, some of which we are purchasing from countries such as Nigeria. We have an abundance of twenty-three kinds but still require diamonds for grinding wheels, chromium, cobalt, columbium, tantalum, molybdenum, and nickel, all of which are used in the production of jet planes (MACHINE and TOOL BLUE BOOK, Jan. 1954).

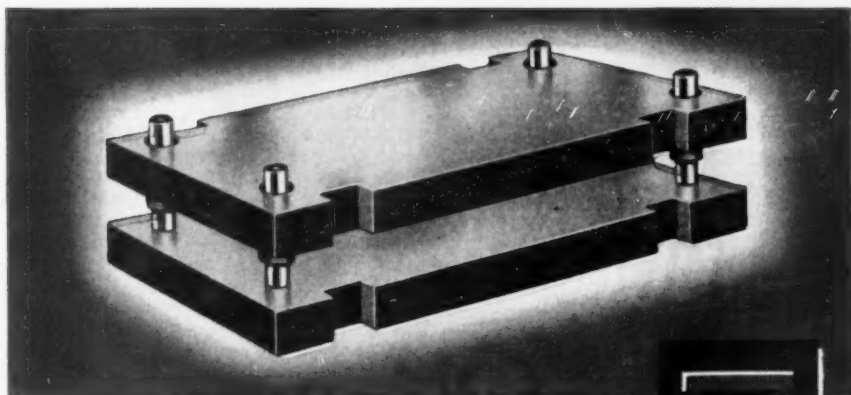
Wendall B. Barnes who was general counsel of the Small Business Administration, and then acted as administrator, recently was sworn in as head of the Small Business Administration by Associate Justice of the Supreme Court, Harold H. Burton. Recently, in testifying before the Senate Small Business Committee, Barnes told the senators with a great deal of satisfaction that the curbs on sale of machine tools for non-military use have been relaxed by the Business and Defense Services Administration of the Department of Commerce. The announcement was made in the publication of an amendment to M-41, the machine tool order. It specified that producers of metal working equipment may now sell as much as 60% of the output to the civilian market, thus reserving only 40% for military contractors and subcontractors. They formerly took 60% of the industry's entire production. Barnes reported, with a more normal balance between supply and demand, the Business and Defense Services reported that the backlog of machine tool makers has declined from \$846 million existing last June 30, to \$723 million at the end of Nov. 1953.

It was reported that the relaxation of the control was made possible because most manufacturers of metal working machines and equipment, who contributed greatly to the success of the defense program, have been able to strike a balance between supply and demand. The amendment closely follows a recommendation which was made Oct. 21, 1953 by the Machine Tool Manufacturers Industry Advisory Committee at a meeting with the government officials.

One exception was made to the 60-40 ratio. It was provided that the jig-boring, jig-grinding and jig-milling machines, and milling machines No. 4 and larger, must be still produced and delivered on the basis of 70% for the military and 30% for non-military schedules. It was also announced that the Atomic Energy Commission will continue to be entitled to obtain metal-working machines and equipment on a priority rating basis, from that portion of the production which is classed as non-military.

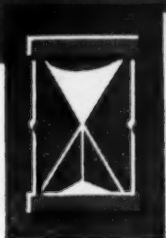
We, who have to do with people in and out of government here in Washington, often wonder why business men are apparently indifferent to those things behind liberty-politics? The average business man we meet is familiar only with those aspects of government activities which affect his business. It amazes us, who are in the midst of this high point of politics. Great numbers of businessmen find themselves so wrapped up in their affairs, and in their daily life, that they leave what we call politics either to professionals or to those who are not as well qualified as are the business men themselves. Unless the business men really make it part of their business to genuinely understand politics there is no doubt our troubles will be greater than they are today.

You may get an idea of the atmosphere by this little



**FORTIFY EXPENSIVE DIES**  
*with dependable, top-quality*

# **detroit**



Smallest cost of a mounted die is the die set . . . often only a fraction of the total. Saving a few dollars on a die set may run up other costs, such as in re-working the set in your shop, in mounting, in interrupted production. When you specify a Detroit Die Set you get the accuracy and the quality you have a right to expect . . . and without paying a premium.

## **die sets**



**Call "Detroit"**

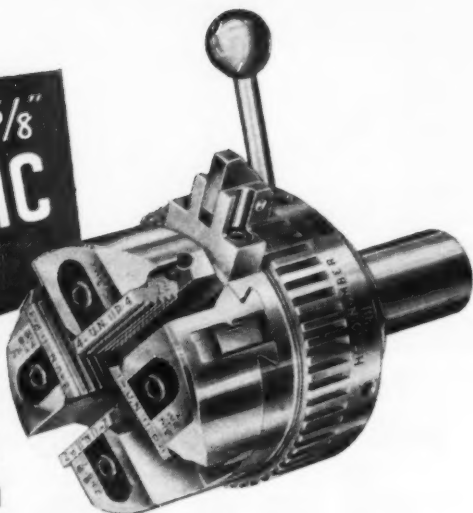
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# The IMPROVED $\frac{5}{8}$ " LANDMATIC HEAD - - -



- Positive Locking Action
- More Rigid Construction

An improved **LANDMATIC** Hardened and Ground threading head has been designed for use on turret lathes, hand-operated screw machines, and automatic screw machines employing a stationary head. The 5HH **LANDMATIC** is a stationary self-opening head, and will produce threads ranging from  $\frac{1}{4}$ " to  $\frac{5}{8}$ " in diameter. Its construction features two important improvements in design—a positive locking action, and greater head strength.

The positive locking action is provided by a new size-adjustment mechanism. A pivoted latch is held in engagement with notches on the adjustment ring by spring tension. A movement of one notch makes

a corresponding adjustment of .001" on the pitch diameter of the workpiece.

The greater overall strength of this die head results from the increased thickness of the head body and its various parts. The new design allows this small die head to easily withstand the extreme stresses imposed when threading special alloy steels.

The 5HH **LANDMATIC** Head has a notably small number of working parts. All parts are made of special alloy steel, and are hardened and precision ground. Left-hand threads may be cut by using left-hand chaser holders and regrinding the same set of chasers. More information available on request.

**See this EQUIPMENT at the ASTE Show — BOOTH 1738**

## LANDIS Machine CO.

WAYNESBORO  
PENNA., U.S.A.

incident. Your correspondent was responsible for the proposed arrangements of a visit by a small delegation of persons from various states to the White House. Normally there is no great difficulty in making such arrangements with the aid of some senators from different states with whom he is acquainted. They would have made the request, and the request would have travelled either directly to the president or through some of his staff, and in due time there would have been a definite appointment.

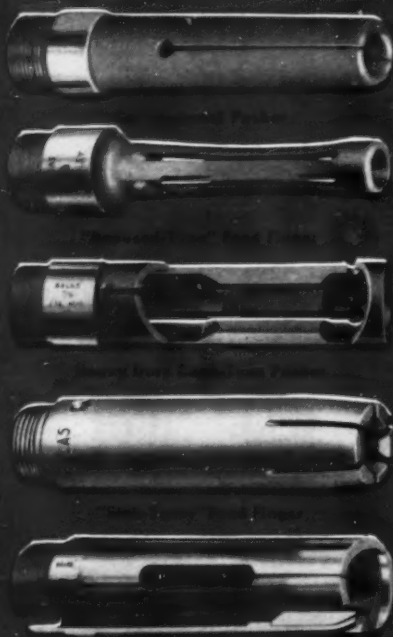
But, as affairs developed here the past months, the tiny irritations and the greater strains made such arrangements more difficult. Pres. Eisenhower has an attractive smile and a quick temper. The senators do not underestimate themselves. It was not so long ago that one of them compared his job to that of a prince of a nation. When the conflict over the Bricker amendment came along there were already a number of tensions. Sen. Carlson, of Kansas, presumably is one of the closest friends the president has on the Hill. Sen. Knowland is his spokesman in the senate. There were others comparably as close to the head of the nation. They were known to be under tremendous pressure from the White House to vote against the Bricker Amendment and the George substitute. They voted against the president's wishes. The president won the issue by one vote. There is no remote doubt the issue will come up again, and it will unquestionably be more formidable to the president. Feeling between the Hill and the White House will continue tense. It was just not good sense to ask the senators on the Hill to make an arrangement with the president to receive a delegation. It might be unpleasant. The people on the Hill have in mind what happened when the women from Chicago went to the president to discuss the Bricker Amendment, and they recall the verbal storm that swirled around their heads in the presidential office.

It is an aspect of politics for which you don't particularly blame the president. You blame the situation. And you blame the voters who created the situation. They are responsible for electing the people to the various offices, who inevitably got into the situation. Obviously, if these stresses and strains effect such results as the visit of the delegation that didn't come off, it should be plain that they would have much more serious bearing on other affairs that involve the Congress and the White House. This should illustrate why politics are so all important to every business man in the United States.

It is difficult to determine just which element in politics is most potent. Labels on parties, so far as Washington is concerned, have almost lost their meaning. Sections and regions mean more. The groups from various parts of the country coalesce in regional and sectional combinations, and then tend to make deals with other groups from other regions and sections.

Speaking broadly, we find in the Bricker Amendment fight that the eastern seaboard, which means the area from Maine probably as far South as Charleston,—certainly as far south as Baltimore—was almost solid in supporting the president in opposing the Bricker Amendment. And that was mainly for commercial reasons. Very naturally the banks, and other financial interests, that pivot on New York, opposed the Bricker Amendment. Shipping, exports, imports, all the industries and commerce on the east coast involved in these businesses lined up behind the

you'll be glad you switched to **BALAS**



**THE BALAS LINE INCLUDES**

- Master Collets and Pads
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- Master Pushers and Pads
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*Smooth Feeding  
Long Lasting  
Stock Saving*

# Balas

## PUSHERS

You'll see an immediate improvement both in quality and in continuous money-saving operation resulting from the proper use of Balas Feed Fingers and Master Pushers. Selected tool steel, accurately machined, carefully heat-treated and thoroughly inspected guarantees proper tension and smooth feeding.

Balas Pushers have made remarkable records on long runs...turning out millions of pieces without breaking down on the job. They help you make more profit on your production line and reduce stock waste at the same time. Difficult feeding jobs and scratchless operations are readily handled with the correct Balas Feed Finger or Master Pusher. Order from our large stock of standard types and sizes. You'll make more...you'll save more with Balas!

**BALAS COLLET MANUFACTURING CO.**

CLEVELAND 14, OHIO

**REPRESENTATIVES IN**

Brockport, N.Y.; Atlanta, Ga.; Moline, Ill.; Houston, Tex.; Minneapolis, Minn.; Indianapolis, Ind.; Omaha, Neb.; Shreveport, La.; Detroit, Mich.; Philadelphia, Pa.; Oakland, Calif.; Newark, N.J.; Cleveland, Ohio; Kansas City, Mo.; Glendale, Calif.; Madison, Conn.; Chicago, Ill.; Flint, Mich.; St. Louis, Mo.; Westbury, N.Y.; Portland, Ore.; Denver, Col.; Brantford and Montreal, Canada.

president. As was natural, the influence extended into the daily phases of life. The farther west you got the more intense was the support for the Amendment. In spite of the export and import potentialities of the west coast, most of its people solidly aligned themselves behind the Bricker Amendment.

The Bricker Amendment, and the conflict over it, is simply a symptom of something much deeper. It would seem to behoove the businessman to understand it. There are those who believe that the United States should get out of foreign affairs as quickly as is feasible, and, to the fullest extent that is possible, should devote itself to its domestic business. The question of Communism, Socialism and other forms of collectivism, naturally is part of this debate; but in reality again it is not really a basic part of the conflict between those who want America First and those who are called One Worlders. The issues all intertwine, and have an effect on each other; but they are actually separate conflicts. America First people wish to do little business with the world and they do not wish to spend any of our substance in support. The One Worlder, literally and very sincerely believes that there should be unification in every sense.

On the other hand there is a huge American group represented in Washington which believes that the Third World War has actually started, that it started several years ago. They hope it may be possible to conclude this war without shooting, at least without armed intervention by the United States. They seem to be reasonably assured that it might be possible to defeat the Russians by inciting rebellion among their satellites. There are devoted people of all races and nations who apparently are working under some general leadership in all the continents of the world, where the Russian influence is dominant, to bring about the most widespread revolt. Naturally, it is hoped that most of this may be ideological and may be accomplished with a minimum of armed conflict.

In the interests of all these efforts many strive in various ways. There probably never has been such a huge production of books, pamphlets, leaflets, letters and other "literature" in the history of the world. Most of these products are contributed by volunteers. Some of the most excellent printed discussions about American problems have come from some of the leading business men of the country, such as Adm. Ben Moreell, Benjamin Fairless, Gen. Bonner Fellers, and W. C. Mullendore, now head of the Southern California Edison, and once secretary to Former Pres. Hoover and counsel to him when he was the United States food administrator during World War I.

\* \* \*

Ralph E. Cross, of Grosse Point, Mich., recently was appointed director of the Metal Working Equipment Div. from the Cross Co., Detroit. Cross is known as the originator of a number important developments in the machine tool industry.

\* \* \*

Civil Aeronautics Administration recently forecast that civil jet passenger service will go into scheduled passenger operation in 1957. The forecast came in the final report of the CAA Turbine Transport Evaluation Team which made a one-year study of all aspects of the problem. The report predicts that domestic operation will precede over-ocean use, and that much cargo will be flown before passengers are carried. Simultaneous introduction of turbo-prop and turbo-jet powered transports is predicted.





### The Lazy Draftsman

The letter on "Craftsmanship" on page 132 of your February issue is so significant that I cannot resist writing a few lines about it. Having spent one year of my early career as an engineer in England, I have come to like the British. Their cultivation of craftsmanship is at the same time a strength and a weakness, depending upon where, and how, it is applied.

The principal subject (of Tom Brown's letter) was that of complete and correct drawings. This subject, in the light of the remarks by your correspondent, Mr. Tom Brown from London, is so important that it ought to be taken up in one of your editorials. An old professor in Copenhagen, E. Thaulow, often said, "The most expensive and wasteful person in a plant is a lazy draftsman." This is the same idea expressed in different words.

If you make reprints of Tom Brown's letter, please reserve some for me. I am going to quote several passages for my students.

Erik K. Henriksen  
College of Engineering  
University of Missouri

Several excerpts from Mr. Brown's letter, for those who might have forgotten some of the salient points: "... there is a trend of thought in the U.S. to try to reduce drafting costs by issuing drawings giving the barest outline of the part. All British Productivity Teams who have seen this system condemn it roundly, and I agree with them. Minutes saved in the drawing office can result in hours of

delay and extra work on the shop floor. . . . Drawings should be made on the assumption that the reader of them is feeble-minded; they should control the size, shape and finish of the part and indicate the way it is to be made."

### They Like

I have received a copy of the 1954 MACHINE and TOOL BLUE BOOK Directory, for which I thank you.

I would like to take this opportunity to say that your "Last Minute Washington News" column is, at least to me, the best of its kind I have read anywhere.

Theodore Manfredo, Prod. Supt.  
Mutual Chemical Co. of America

Our copy of the 1954 MACHINE and TOOL BLUE BOOK Directory has been received. This book is appreciated. All publications of BLUE BOOK are read "cover to cover" and preserved for future reference. We have always received more helpful time-saving ideas from BLUE BOOK than from any other publication that crosses our desk.

Chas. W. Fox, Mgr.  
R. E. Dye Machine & Sup. Co.

We received the 1954 BLUE BOOK Directory and would like to take this opportunity to express our appreciation for this directory and also for the monthly BLUE BOOKS.

We find the MACHINE and TOOL BLUE BOOK quite valuable as an equipment and supplies directory, and the articles very interesting in our endeavor to keep up-to-date with current trends and methods.

Ernst J. Utz, Procurement Eng.  
and Shop Supt.  
Barnes & Reinecke, Inc.

## Obvious Adams

You have mailed your MACHINE and TOOL BLUE BOOK to me here at the plant for quite a few years, but I wonder if you would have any objection to changing your mailing list so that you would be mailing it to my home address?

There is so much that is of interest to me in every issue of your MACHINE and TOOL BLUE BOOK that I would appreciate receiving it at home where I have a lot more time to go through it.

The next time you are searching for something important to share with your family of readers in the "As The Editor Sees It" feature you might consider letting them know that Obvious Adams (no relative of mine) is back again!

Back in 1916, a story called "Obvious Adams" was published in the Saturday Evening Post. It told how an advertising man achieved conspicuous success by doing the obvious. He did nothing clever. He did nothing spectacular. His approach to the solution of any problem was simple. By working that way he piled one success upon another. The story appeared in book form and helped make many straight thinkers.

Now the author, Robert R. Updegraff, owner of the Updegraff Press, Scarsdale, New York, has published the original story and has added to it two more chapters, "Five Tests of Obviousness" and "Five Creative Approaches to the Obvious." He makes clear that no idea or plan, no program or project, is obvious unless it can be understood and worked by people of average intelligence.

The rules themselves are so simple, so clear—so obvious, once you have them pointed out to you. If you want a copy, send \$1.00 to Bob Updegraff. Quantity prices are lower. You can get 500 copies or more for only fifty cents a copy.

In a talk which he made several evenings ago, Mr. Eugene Laitala, Personnel Director of the Nicollet Hotel, Minneapolis, said that industry needs to devote more attention to the social and human aspects of personnel management.

"Man is not just a jig in production receiving a wage," Laitala said, "he is a social being."

In the rapid industrial expansion and development of the nineteenth and twentieth centuries, groups changed constantly as job and mechanical processes changed, Laitala pointed out. He concluded his talk with a statement that today's worker experiences a sense of void where his father knew comradeship and security.

If you want to do something for your readers sometime to help them understand man as a "social being" you might recommend Henry J. Nunn's new book, "The Whole Man Goes To Work." It is the autobiography of the founder of the Nunn-Bush Shoe Company. He started in the shoe business as a bookkeeper in St. Louis and worked from seven to six (and longer many days) for \$17.50 a week. In those days labor was looked on as a commodity, to be bought like machines and leather. Nunn liked people. He ran the production up when he took over the job held previously by George Harsh. He got double production because he made it possible for his workers to enjoy their work. This is a book every foreman and every personnel man should read. It is published by Harpers.

Thank you for your consideration on my request to have MACHINE and TOOL BLUE BOOK mailed to me at my home.

John Adam, Tool Room Foreman  
Minneapolis, Minn.

*To reader Adam a cordial thanks for his chatty and interesting letter and for taking the time to draw my attention to "Obvious Adams" and "The Whole Man Goes To Work"; the former is an old friend of years ago and I remember reading a reprint of the story. I have no qualms about recommending Obvious Adams to anyone who, like yours truly, is neither clever nor brilliant. It is always reassuring to know that simplicity, in the final analysis, is at the bottom of every creation and act and every work of art.*

*The BLUE BOOK will be sent to reader Adam's home in the future.*



Radius  
Forming  
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"Tru-Line"  
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Dressing  
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Diamond  
Grit Tools  
for Thread  
Dressing

"Tru-Thread"  
Thread  
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Tools



## **HYDRAULIC**

# **DIAMOND-MISER** *by Wheel Trueing*

**Automatically develops and maintains multiple, sharp diamond facets for maximum wheel dressing efficiency.**

Wheel Trueing Diamond-Miser is a tool-holder unit which is operated from the hydraulic system of the machine and which automatically provides uniformly metered diamond tool indexing.

Because the indexing is automatic, it is assured and dependable; cannot be accidentally neglected.

Because it is precisely metered, it produces multiple, uniform diamond facets which are re-sharpened in each pass of the tool, with minimum wear on the wheel.

The improvement in wheel dressing, increase in number of pieces produced between dressings, reduced diamond wear and longer wheel life, result in important economies.

The Diamond-Miser is available for centerless, cam, crank and universal grinders; single or multiple wheel mounts. May we send you our descriptive booklet?

## **WHEEL TRUEING TOOL COMPANY**

**45-3200 West Davison Avenue • Detroit 38, Michigan**

**ESTABLISHED 1910**

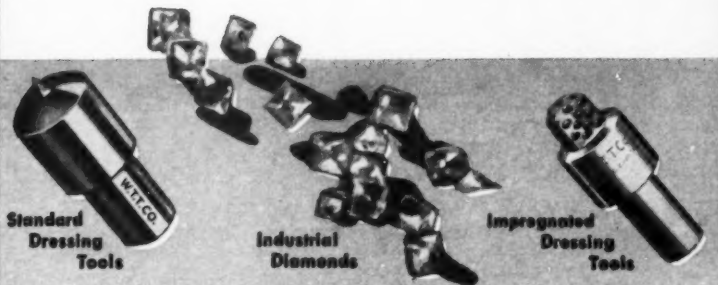
*Offices in Principal U. S. Cities—Agents Throughout the World*

**WHEEL TRUEING TOOL COMPANY OF NEW JERSEY**

**33 West Street, Bloomfield, N. J.**

**WHEEL TRUEING TOOL COMPANY OF CANADA, LTD.**

**575 Langlois Ave., Windsor, Ont.**

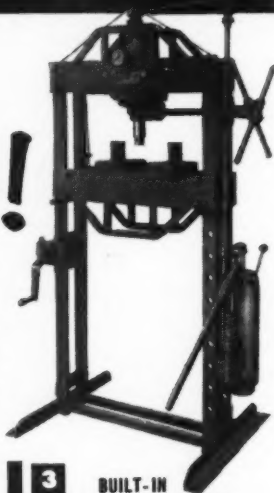


# KRW is the Best Hydraulic Press You Can Buy!

## Let's take one apart and prove it!



KRW Customers, which includes almost every nationally known company in the United States and Canada, tell us that KRW Presses are the best buy! They have proved it to themselves in day after day, year after year satisfactory performance. Now we want to prove to you why these customers are so right.



### 1 RAPID APPROACH OF RAM FILLS CYLINDER WITH OIL



The ram is quickly brought down to the work by rotating the "Capstan" handwheel. As the ram descends to the work the cylinder is automatically filled with oil. A flip of the ball arm closes the valve, and the first pumping stroke gives tons of pressure on the work.

### 4 WELDED TRUSS REINFORCEMENT



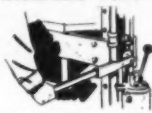
The heavy steel bed and crown plates on KRW presses have a special welded truss reinforcement to give them added strength and rigidity with minimum weight. This feature minimizes deflection.

### 2 MACHINED ALL-STEEL V-BLOCKS



KRW all-steel V-blocks (furnished with the press) have machined shoulders which slide on the machined top surfaces of the bed members. This means you can slide the V-blocks along the bed to make quick set-ups and they're always in alignment. You get solid, rigid, accurate support. No danger of V-blocks tipping or falling between the bed members.

### 5 CONVENIENT LOCATION OF HYDRAULIC PUMP HANDLE



The KRW pump handle is slightly below waist level, a natural, comfortable position which enables the operator to work for long periods of time without fatigue. He can exert whatever strength necessary easily and efficiently. It's a man-saving feature that results in better, more accurate work and greater production.

### 3 BUILT-IN MECHANICAL PRESS



Spinning the "Capstan" handwheel rotates a pinion which engages a rack cut in the ram. The sliding handles in the handwheel can be extended to increase leverage to give a ram pressure of 3 tons. This "built-in" mechanical arbor press gives the operator the advantage of the large bed and its adjustability. It permits the use of the V-blocks when necessary. If more than 3 tons pressure is required close the valve and a few pumping strokes give the needed hydraulic pressure without moving the work from the bed.

### COMPLETE LINE

KRW makes a complete line of one, two and three cylinder Hydraulic presses, 25 to 150 ton capacities; hand operated, air operated or motor driven. Tell us your needs. We'll send you facts, specifications and prices without obligation.



# K·R·W·I·L·S·O·N

214 Main Street, Buffalo 3, N. Y.

Designers and Builders of the Right Hydraulic Press to Solve Your Metal-working Problems!



# How's BUSINESS ?

## Distributors and manufacturers optimistic

An optimistic attitude toward sales to the industrial market during 1954 was revealed by a business volume poll taken among industrial distributors and manufacturers who attended a recent joint meeting of the Southern Industrial Distributors' Association and the American Supply & Machinery Manufacturers' Association, at Biloxi, Mississippi.

When the industrial distributors were asked about their business volume for the first half of 1954 as compared with the year 1953,, they forecast as follows:

- 15 expect business volume first six months of 1954 to average 9% above 1953.
- 22 expect business volume will be about the same as 1953.
- 12 said that business volume will decrease 9.75% from 1953.

Industrial distributors feel that rather than the first half of this year showing a decline, it will be slightly better than the record year of 1953. When manufacturers selling to industry were asked the same question, they answered as follows:

- 23 expect business volume to increase 10.5% over 1953.
- 29 said business volume would be about the same as 1953.
- 24 said business volume would decrease, on the average, 9.33% from 1953.

The manufacturers are a little more

conservative than distributors. They look for about the same volume of business in the first half of this year as last year.

As to the second half of the year, industrial distributors are even more optimistic:

- 17 expect business volume to be up an estimated 9% over 1953.
- 19 expect business volume to be about the same as 1953.
- 12 expect business volume will be off about 6.9% from 1953.





The same optimism prevails among manufacturers:

- 27 expect business volume to be about 12.25% over 1953.
- 26 expect business to be about the same as 1953.
- 22 expect business volume to be off on an average of 9.33% from 1953.

### Small Business Administration Reports to President and Congress

The number of small business firms in the country is now at a record level and as our economy expands new opportunities will be provided for resourceful new enterprises, Wendell B. Barnes, Administrator of the Small Business Administration, said in his agency's first semi-annual report to President Eisenhower and Congress.

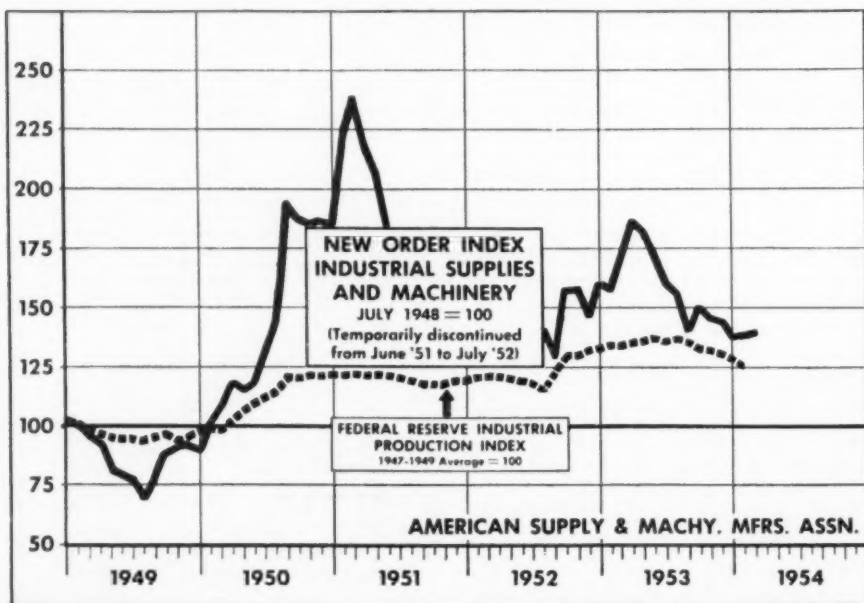
"A record number of more than 4,200,000 businesses are operating in the United States today," the report says,

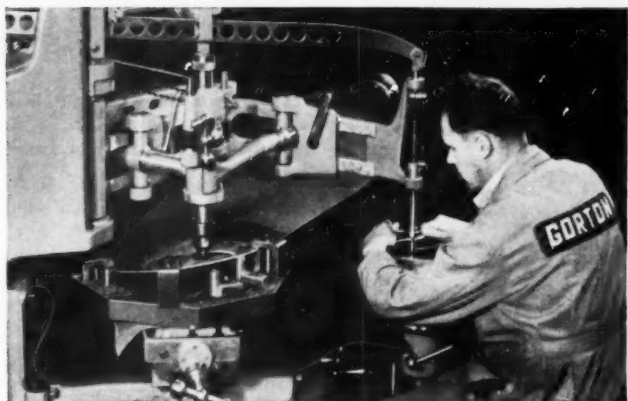
and "more than 95 percent of these are small.

"Our gross national product in 1953 prices has increased from \$175,900,000,000 in 1929 to \$367,000,000,000 in 1953; personal consumption expenditures have increased from \$123,200,000,000 to \$348,000,000,000.

"Even if the present year should witness a 5-percent drop in the gross national product by virtue of the readjustment now taking place, this would leave the output of goods and services at \$349,000,000,000 which would still be higher than the 1952 output of \$348,000,000,000."

Regarding the Small Business Administration's three major fields of assistance to small business: helping small firms get a fair share of Government procurement; assisting them to obtain access to adequate capital and credit; and providing management, technical





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and production counsel—the report said: “Despite the steep reduction in Government procurement, SBA’s efforts have succeeded in maintaining a fair proportion of purchases for small business or at least in staving off any further decline.

“An agreement being negotiated with the Department of Defense is expected to result in a much stronger joint determination program that will lead to earmarking an even greater percentage of suitable procurements for small business, particularly through dropping the minimum amount for purchases subject to joint determination from \$25,000 to \$10,000.

“SBA has taken determined action at the community level to widen the scope of bank lending to small firms. Through our bank participation program, we have expanded substantially many small banks’ lending power, as well as their willingness to lend to small firms.”

During the four months that the SBA’s lending program has been in operation, the agency has made 53 business loans amounting to \$3,755,900, the report says.

Regarding the relative positions of small firms as compared with larger ones, the report said:

“The latest available sales and earnings statistics do not show too bright a competitive situation for small business as a whole. The impetus given by the Korean boom has faded, leaving small business in a somewhat less favorable position than in the pre-Korea period. Large businesses, on the other hand, are definitely better off in sales and earnings than they were before Korea.

“Further cutbacks and cancellations of Government contracts are to be expected in the next fiscal year. If the interests of small business are to be adequately protected and promoted in the period ahead, existing procedures

within the Government will have to be drastically overhauled.

“A most heartening development has been the recognition by the National Administration of steps necessary to improve the financial position of small business.”

During the latter part of 1952 and most of 1953, earnings of the large corporations increased while those of small corporations declined still further to less than 80 percent of what they had been during the base period.

The report noted also that an analysis of large military prime contractors shows an increasing tendency to place contracts with big business.

“Prime contract awards to the top 100 companies between July 1950, after the start of the Korean conflict, and June 1951 amounted to 61.2 percent,” the report said. “Between July 1950 and June 1952, it had risen to 62.4 percent, and by June 1953 to 64 percent. This increased concentration was mostly among the 10 largest companies.”

Nevertheless, the SBA reported that from August 1, 1953, when the agency was created, and January 31, 1954, it had been successful in earmarking military procurements valued at \$142,016,252 for award to small firms under its

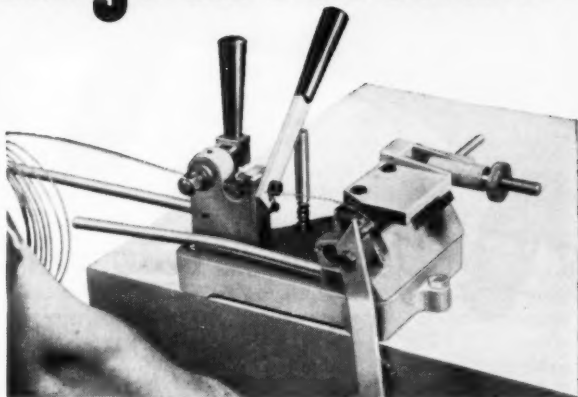
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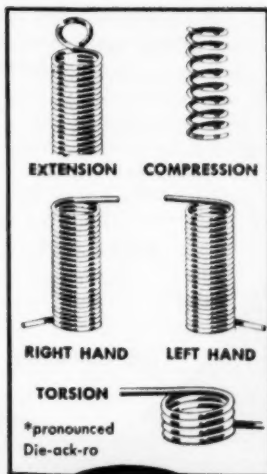
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joint determination program. Of this amount, 173 contracts had actually been awarded to small firms, totaling \$16,-376,651.

The SBA also found it significant that there has been a steady increase in the interest shown by small firms in the small business loan program.

A total of 33 applications for business loans was received during October; 68 were received in November; 145 were filed in December; and 185 were received in January. An average rate of 300 applications per month is expected by the end of June.

For the period August 1, 1953 through January 31, 1954, 170 loan applications had been received in the Washington office, and 55 loan applications had been approved.

Of the loans approved, 32 were bank-SBA participation loans, for a total of \$2,358,900 and 23 were direct loans, totaling \$1,397,000. The average size of loans was about \$68,000.

#### Depreciation

Quoting from President Eisenhower's State of the Union address, we find this significant paragraph: "Specifically,

I recommend that business be allowed more freedom in using straight-line depreciation and in selecting other methods of depreciation. Larger depreciation charges should be allowed in the early years of life of property by the use of the declining-balance method of depreciation at rates double those permitted under the straight-line method. Other methods which give larger depreciation in early years should be accepted, so long as they do not produce deductions which exceed those available under the declining-balance method.

"The new method of depreciation should be allowed for all investments in building, equipment and machinery made after January 1, 1954. This would include equipment and new construction of commercial and industrial buildings."

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## Don't Break Your Back . . . Use Power-Operated Holding Devices, part 2

### Clamp Circuits

SINCE all fluid power operated clamping devices are either operated by air or hydraulic means, each must have a circuit to control the flow of the medium through its various channels of operation. The importance of the design of the circuit cannot be stressed too highly as it can easily make or break the success of the operation. On single clamping devices the circuit is quite simple but in the use of multiple station machines where other fluid power interlocks are tied in, the circuit may become quite complicated.

The circuit must operate with exact precision and must be quick acting so as not to develop any time lag in the operating cycle. Slow down in any part of the circuit will greatly hinder the production effort.

The following circuits are typical of those used successfully on clamping devices:

#### CIRCUIT NO. 1

##### Safety Circuit For Clamping Device

1. Operator places workpiece in clamping fixture.

2. Operator then uses both hands to shift handles on three-way valves No. 3



By **Harry L. Stewart**

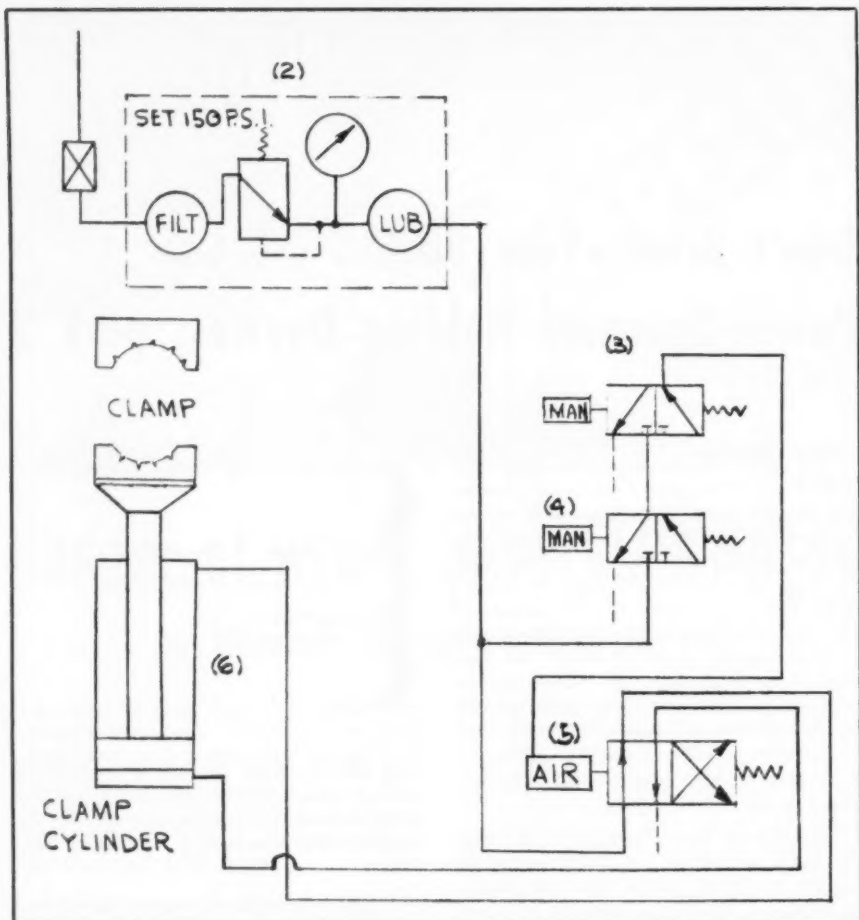
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and No. 4. Both valves are designed with a spring return feature so that the operator must keep his hands on the valve handles during the clamping cycle.

3. Since handles of valves No. 3 and No. 4 are shifted, air pressure passes the inlet port to the cylinder port of each valve on to the air pilot connection of valve No. 5, shifting piston of this master valve against spring tension and the air pressure passes to blind end of clamp cylinder No. 6. The piston of cylinder No. 6 moves forward securely clamping the workpiece between serrated type jaws.

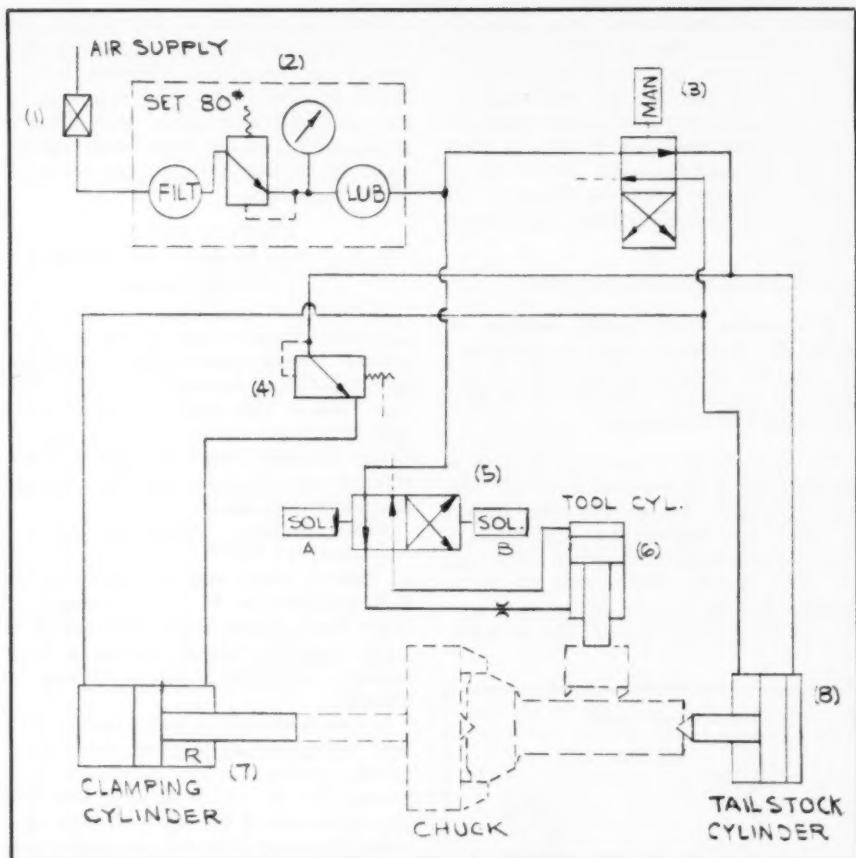
4. Milling head moves in and performs operation on workpiece, then retracts.



**Circuit No. 1**  
**Safety circuit for clamping device**

5. Operator releases hands from handles of valves No. 3 and No. 4 which allows the cylinder port of valves No. 3 and No. 4 to be connected to exhaust, or atmosphere, which bleeds air pressure from pilot connection of valve No. 5. Spring in this valve shifts it to original position allowing air to flow to rod end of clamping cylinder. Clamp immediately retracts.

On very fast acting clamping devices it is usually a good idea to use two-hand controls which eliminates the possibility of the operator getting a hand caught in the fixture as it closes. In the above circuit if the operator releases either hand from the control handles on valves No. 3 or No. 4 the clamping cylinder will return to the starting position. In order to assure long life from



**Circuit No. 2**  
**Multiple cylinder chucking circuit**

the components of the circuits it is necessary to use a filter, lubricator and regulating device on each system. This keeps the air clean, properly regulated, and properly lubricated, which is so necessary in satisfactory air operation.

### **CIRCUIT NO. 2** **Multiple Cylinder Chucking Circuit**

1. Operator places end of rough forging against center in two jaw compensating type air chuck, shifts handle of four way valve No. 3 and air flows to

blind end of tailstock cylinder No. 8. Air-operated tailstock moves forward and forging is located between center in chuck and center in tailstock.

2. Air pressure builds up in line between valve No. 3 and tailstock cylinder No. 8 and sequence valve No. 4 opens. Air then flows to rod end of rotating cylinder. Piston of cylinder retracts which pulls on the drawbar and through a lever mechanism the chuck jaws close on the rough forging.

3. Operator starts revolving machine

spindle. At the same time solenoid operated valve **No. 5**, which is of the four-way type, shifts and air flows to blind end of tool cylinder. Tool cylinder moves in and plunge cuts the work. At end of tool cylinder stroke a limit switch is contacted and valve **No. 5** shifts to original position directing air to rod end of tool cylinder and piston retracts.

4. Machine spindle is stopped.

5. Operator then shifts handle of valve **No. 3** and air flows to blind end of rotating clamping cylinder **No. 7** and rod end of tailstock cylinder **No. 8**, thus releasing the workpiece.

By the use of a cam operated flow control valve in conjunction with the tool cylinder, the operator can obtain a quick tool approach to the work, a slow feed through the cutting cycle, and a quick release. This valve is to be placed so that the air is metered as it leaves the rod end port of the cylinder.



With the above circuit layout one operator may attend two or more machines on long chip removal cycles. There is very little effort required on the part of the operator in tending a group of machines with push button controls. He has full clamping pressure at his fingertips.

### CIRCUIT NO. 3

#### Use of Two Mediums In Clamping Circuit Layout

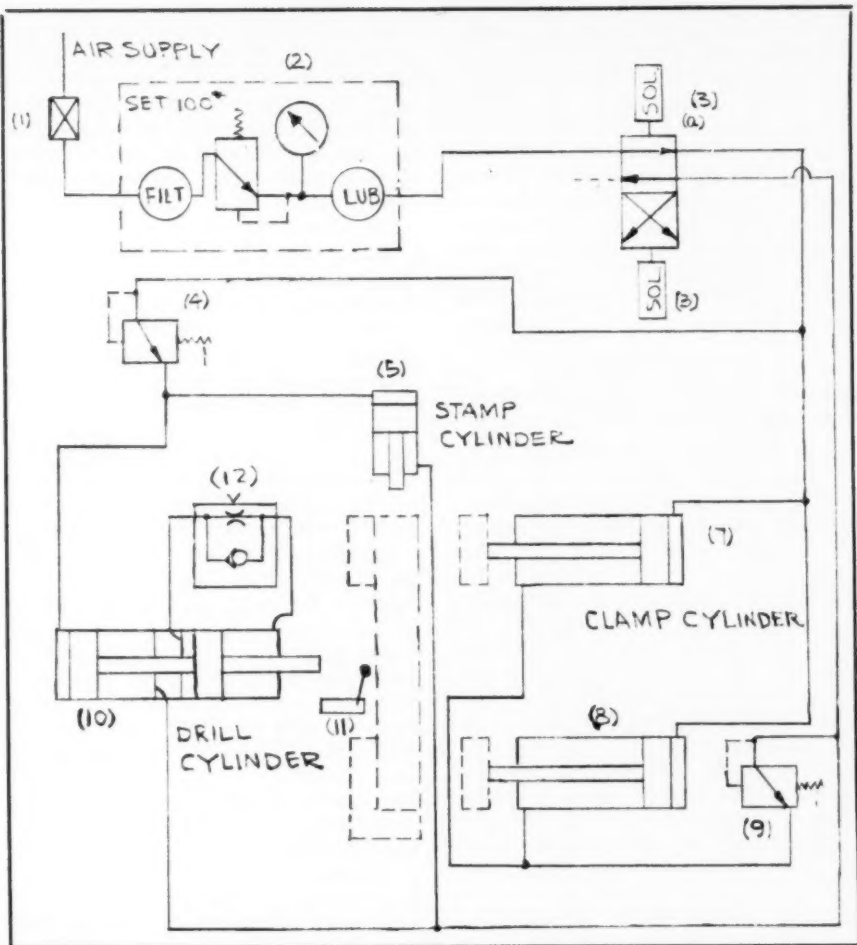
1. Operator loads large timber into clamping fixture and contacts push button which momentarily energizes solenoid "a" of four-way, two-position valve **No. 3**. This shifts piston of valve **No. 3** and air flows to blind end of clamp cylinders **No. 7** and **No. 8**. Their pistons move forward rapidly, contacting the workpiece.

2. Air pressure builds up and sequence valve **No. 4** opens allowing air to flow to blind end of air-hydraulic drill cylinder **No. 10** and to stamp cylinder **No. 5**. Since stamp cylinder is of small bore its piston advances very rapidly, stamping insignia on end of timber.

3. Piston of drill cylinder moves drill into workpiece at a speed determined by the setting of the hydraulic flow control **No. 12** which is built into the hydraulic end of the air-hydraulic cylinder. For soft timbers the speed will be set higher than for that of hard timbers. A wide variety of speeds may be obtained by the adjustments of the flow control needle.

4. The drill is fed into the workpiece until limit switch **No. 11** is contacted by a cam located on the machine bed. Limit switch momentarily energizes solenoid "b" valve (3) and air flows to rod ends of cylinders **No. 5** and **No. 10**. Both pistons retract rapidly to original position. The oil in cylinder **No. 10** bypasses through the check valve to effect rapid retraction.

5. Air builds up in line and pressure opens sequence valve **No. 9** and allows



**Circuit No. 3**

Use of two mediums in clamping circuit layout

air to flow to rod end of clamp cylinders No. 7 and No. 8. Their pistons retract to original starting position, thus completing the cycle.

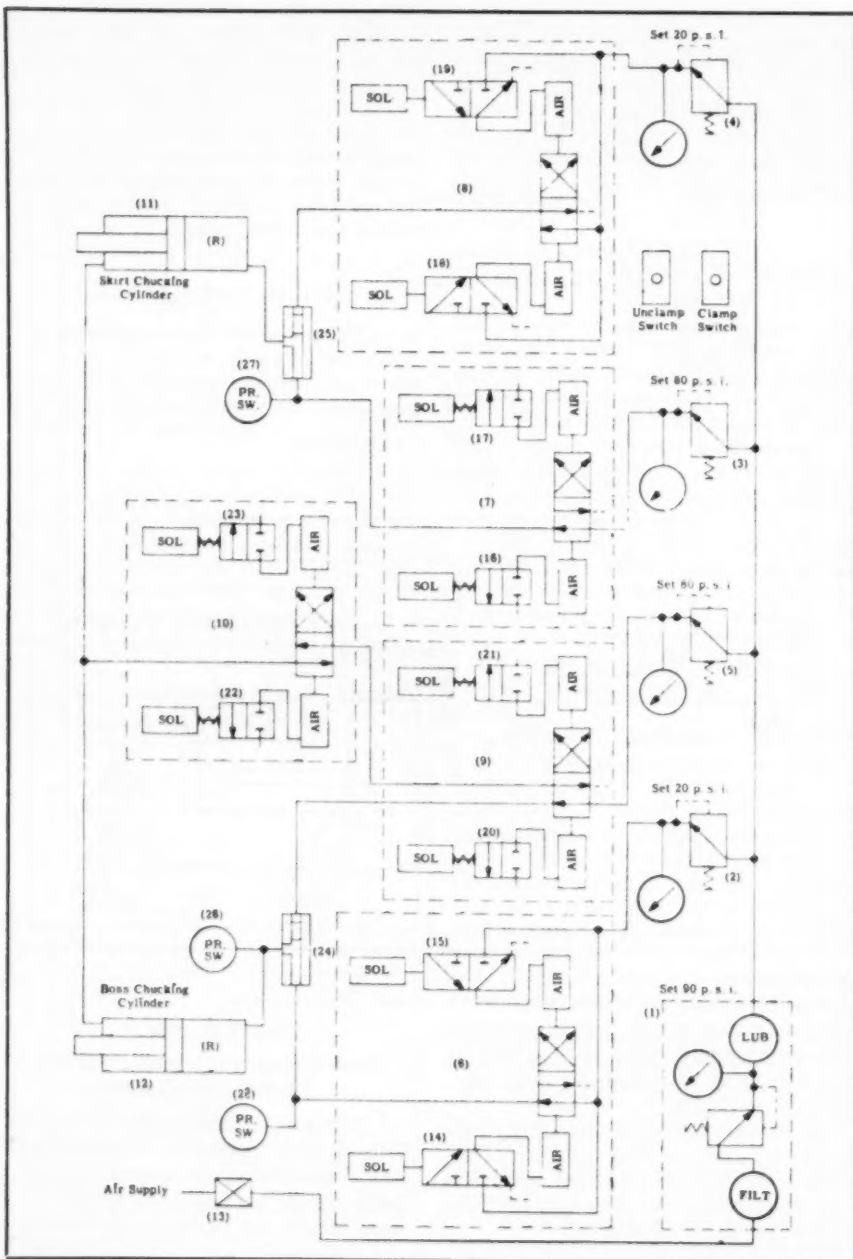
By the use of the air hydraulic cylinder for the drilling operation the same type of feed is possible as with a hydraulic system yet the expense of the power device is eliminated.

#### **CIRCUIT NO. 4**

**Dual Pressure Clamping Circuit  
Protects Workpiece**

1. Clamping cylinders No. 11 and No. 12 have their pistons in retracted position when the cycle begins. Operator loads rough casting into a four-jaw chuck (each set of two jaws operates





**Circuit No. 4**  
**Dual pressure clamping circuit protects workpiece**

independent of each other) and momentarily energizes clamp push button switch which in turn energizes solenoids of valves **No. 15** and **No. 22**. This causes air to bleed from one air pilot on master valves **No. 6** and **No. 10** shifting their pistons and exhausting unclamp sides of cylinders and applying low pressure to clamp side of boss cylinder **No. 12**.

3. Boss cylinder piston movement closes one set of chuck jaws which centers the casting at a low pressure.

4. Pressure then builds up in line closing pressure switch **No. 28**, set at 20 P.S.I., energizing solenoids of valves **No. 14** and **No. 16**. This causes air to escape from pilot chamber of valve **No. 6** and air is exhausted from boss cylinder. Master valve **No. 7** is also shifted allowing high pressure to flow to skirt cylinder for locating skirt on casting.

5. After pressure builds up, 80 lb. pressure switch **No. 27** closes, energizing solenoid valves **No. 17** and **No. 20**, shifting pistons of master valves **No. 7** and **No. 9**. High pressure of skirt cylinder exhausts to reduce distortion through valve **No. 7** and high pressure is applied to boss cylinder through valve **No. 9**.

6. Air pressure build-up in boss cylinder closes 80 lb. pressure switch **No. 26**, energizes lathe motor and solenoid valve **No. 18**, which causes valve **No. 8** to shift, applying low air pressure to skirt cylinder, completing first half of cycle.

7. When machine work is complete, operator contacts unclamp push button, energizing solenoids of valves **No. 19**, **No. 21**, and **No. 23**. This causes piston in valve **No. 8** to shift which exhausts clamp side of skirt cylinder through valve **No. 21** of boss cylinder, through valve **No. 9**, applying pressure to valve **No. 10** which has shifted to direct pressure to unclamp sides of cylinders **No. 11** and **No. 12** for opening chuck to release work, completing the cycle.

Dual pressure chucking circuits are especially helpful when first and second operational work is to be performed on tubes or other pieces in which extensive chip removal is done on the first operation and the cross section becomes quite thin. High pressure on the heavy operation and lighter pressure on the finishing operation eliminates distortion. If it is not necessary to unclamp the piece between first and second operation much time can be saved.

### CIRCUIT NO. 5

#### Use Of Sequence Valves For Holding Clamp Pressure In Hydraulic System

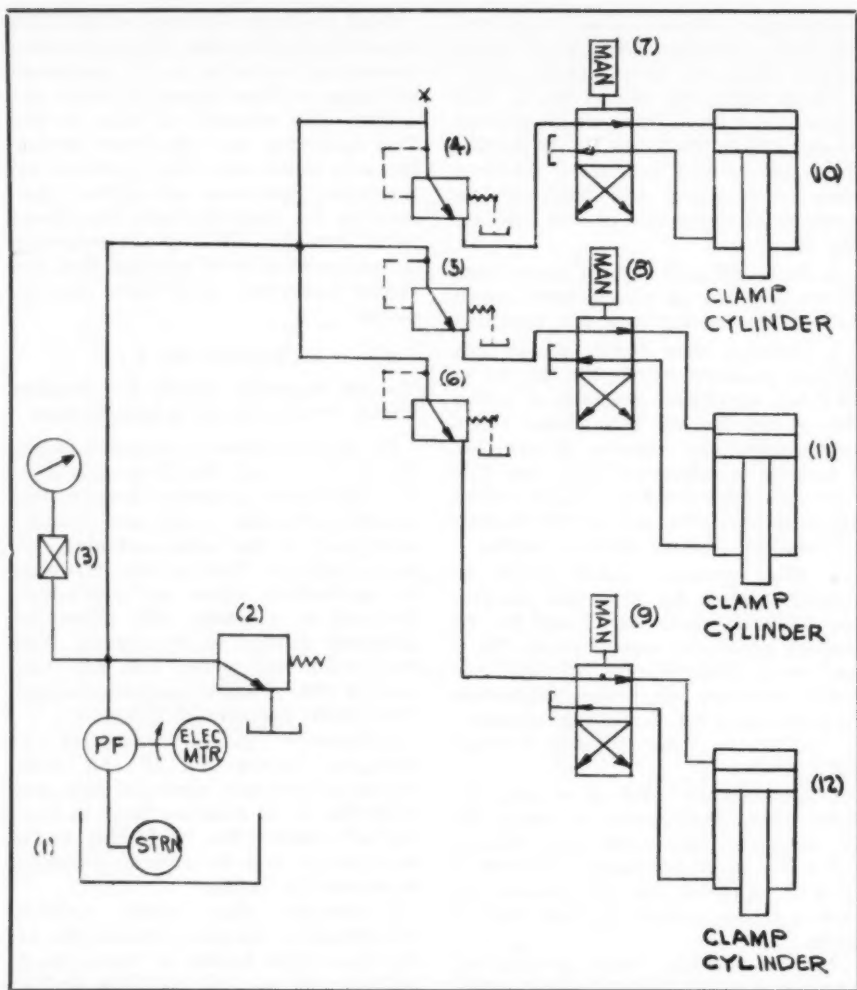
By the installation of sequence valves **No. 4**, **No. 5** and **No. 6** there will be no appreciable pressure drop in the clamping pressure in any one cylinder when any of the other cylinders are being operated. This is very important on applications where any appreciable drop-off in pressure will allow the clamping devices to be opened. With this circuit one power unit will take care of two or more clamping devices. The circuit operates as follows:

1. Operator places workpiece in clamping fixture **No. 12** and shifts handle of manually operated four-way valve **No. 7**. Oil pressure flows to blind end of cylinder **No. 10**, forcing piston and piston rod to extend clamping workpiece in fixture.

2. Operator then places another workpiece in clamping fixture **No. 11**. He then shifts handle of valve **No. 8**, allowing oil to flow to blind end of clamping cylinder **No. 11**. Piston and piston rod move forward, clamping workpiece in fixture.

3. Operator then moves to clamping fixture **No. 12** and repeats the same procedure as on clamping fixtures **No. 10** and **11**.

4. After clamping pressure has remained on workpieces for a sufficient time, the operator shifts handles of



**Circuit No. 5**

**Use of sequence valves for holding clamp pressure in hydraulic system**

valves No. 7, No. 8, and No. 9 and all three clamping devices open.

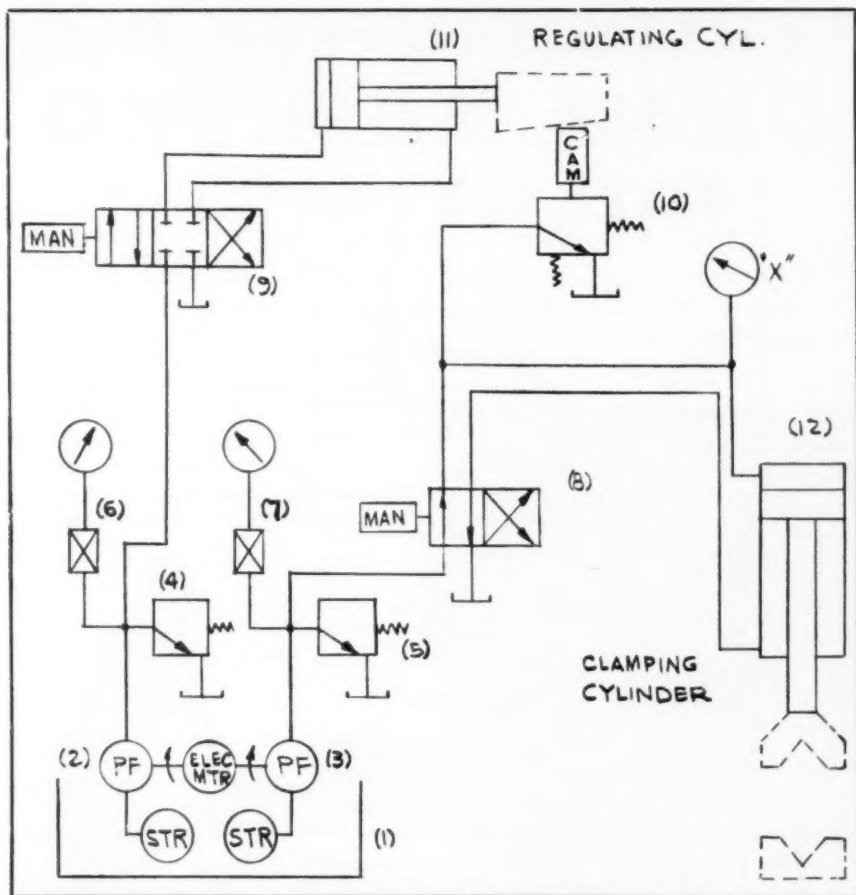
The speed at which these clamps operate depends upon the size of the hydraulic pump on the power device. If the operator shifts all of the master control valve handles at one time, the clamps will only operate one third as

fast as if he only shifts one valve and lets the clamp set before he shifts the next valve.

#### **CIRCUIT NO. 6**

##### **Multiple Pressure Clamping Circuit**

By the use of a large volume and a small volume hydraulic pump on a



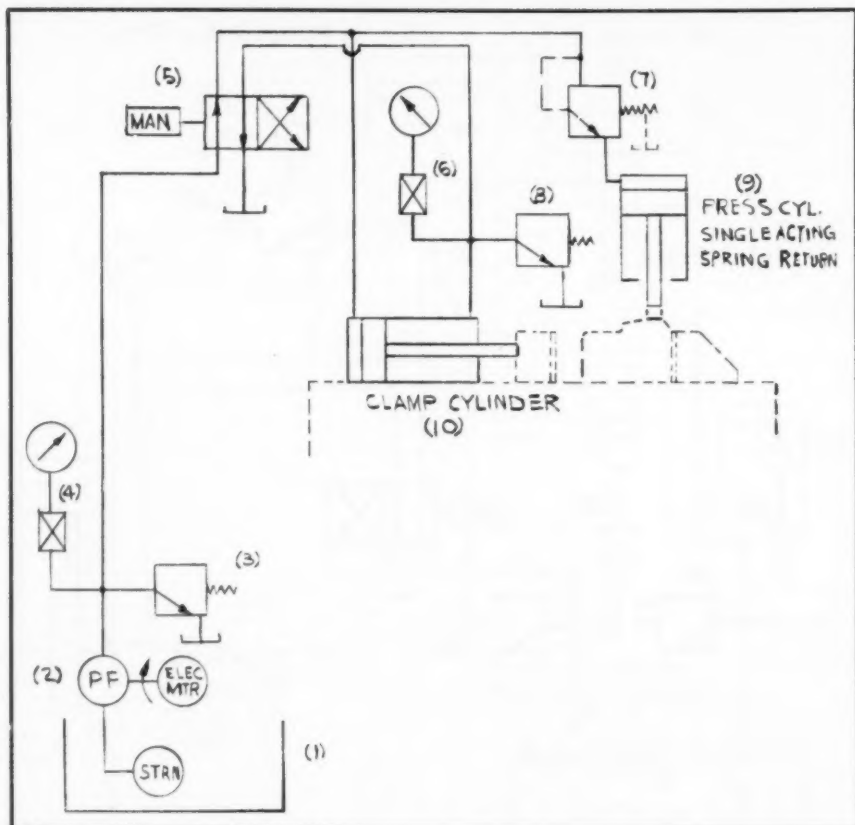
**Circuit No. 6**  
Multiple pressure clamping circuit

single power unit a clamping circuit can be worked out from one pump and a regulating circuit from the other. The circuit operates as follows:

1. Operator places workpiece in clamping device and shifts handle of four-way two-position valve No. 8 allowing oil to flow to blind end of clamp cylinder No. 12. Relief valve No. 10 controls the operating pressure of the clamping system even though

valve No. 5 is at the pump and is set at maximum pressure. Ram of clamp cylinder descends at low pressure until workpiece is contacted.

2. Operator then shifts handle of four-way three-position valve No. 9 allowing oil to flow to blind end of regulating cylinder No. 11 and piston starts to move out. Whenever cam on relief valve No. 10 is depressed the desired amount operator shifts handle of valve



**Circuit No. 7**

**No. 9** back to neutral position through setting the clamping pressure for that particular phase of the operation. The operating pressure of the clamping system is registered on gage **No. X**.

3. After work is completed operator retracts regulating cylinder through valve **No. 9** and clamp cylinder through valve **No. 8**. This completes work cycle.

#### **CIRCUIT NO. 7**

With this circuit, the relief valve **No. 8**, placed in the line between the master four-way valve and the rod end of the

cylinder, allows for long standby periods, when the clamp cylinder is retracted, at low operating pressure. This greatly reduces heat in the system. Heat is one item which causes many leaks in the system, as well as a breakdown in the oil. Low operating pressure also reduces wear and electrical output.

The circuit functions as follows:

1. Operator places machined casting in clamping fixture, loads bearing on end of press cylinder ram, and shifts handle of four-way two-position valve

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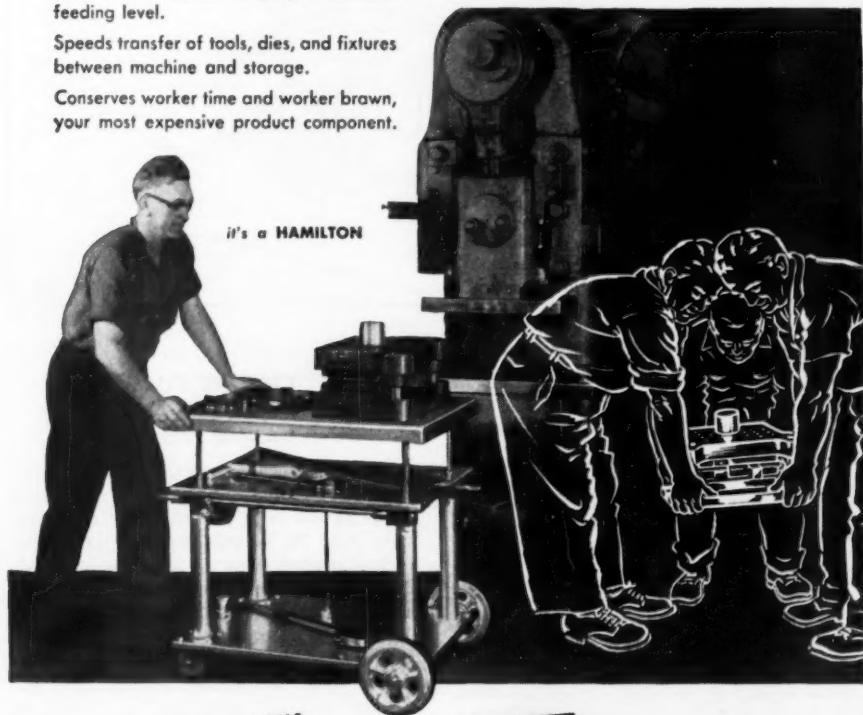
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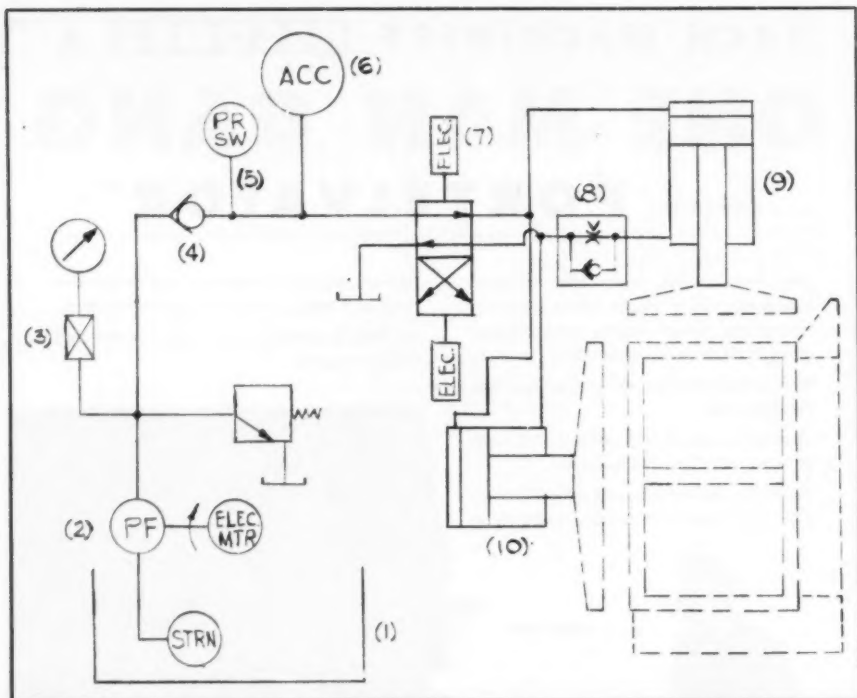
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**Circuit No. 8**  
Use of accumulator for holding clamping pressure

No. 5. Oil flows to the blind end of clamp cylinder No. 10 and piston and clamp jaws move forward locking casting in fixture.

2. When pressure builds up in line between four-way valve No. 5 and blind end of cylinder No. 10 sequence valve No. 7 opens allowing oil to flow to blind end of press cylinder No. 9 and piston moves forward forcing bearing into finished bore in casting.

3. Operator shifts handle of valve No. 5 and oil quickly exhausts from press cylinder due to spring action. Oil flows to rod end of clamp cylinder return ram at low pressure as set by relief valve No. 8. When piston of cylinder No. 10 is completely retracted, operator removes workpiece and is ready to load for next cycle.

### **CIRCUIT NO. 8** **Use Of Accumulator For Holding** **Clamping Pressure**

Accumulators prove valuable on applications which require high clamping pressure for long periods. The accumulator may be of the dead weight type, spring-loaded type, or air bladder type. The function of each is pretty much the same. By using an accumulator the pump only operates when the operating pressure of the system drops to a point below what is deemed satisfactory for proper control pressure. A pressure switch automatically cuts in and cuts out the electric motor which operates the hydraulic pump. The accumulator not only compensates for internal leakage in the system but also is a quick

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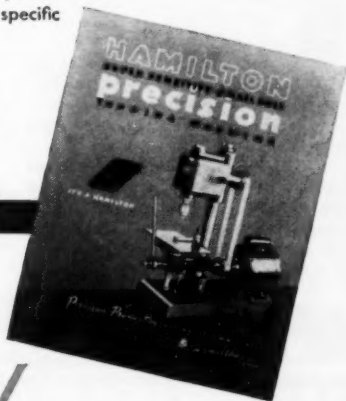
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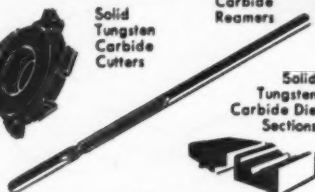
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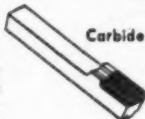
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2. Operator performs operation on workpiece.

3. He then depresses second push button, energizing second solenoid which in turn shifts piston of valve and oil then flows to rod end of cylinders No. 9 and No. 10 retraction clamps to original position, completing the cycle.

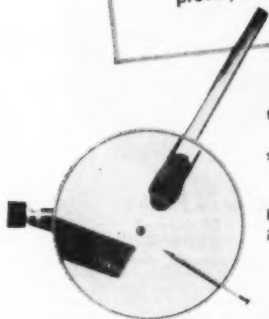




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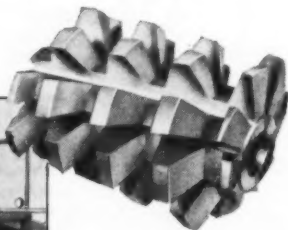
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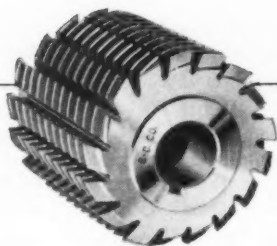
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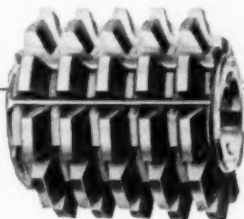
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# Grinding Glass Fiber-Reinforced Plastics

By **R. T. Argy**, Abrasive Engineer  
Coated Products Division  
The Carborundum Company  
Niagara Falls, New York

A BASIC manufacturing problem which is being given serious attention is how to machine and polish-grind glass fiber-reinforced plastics economically and efficiently. The existence of the glass reinforcing material, as the strengthening member, presents certain obstacles different from those found in conventional plastics.

In general, the material being cut by a machine tool or abrasive grain is subjected to mechanical forces which cause it to fail along predetermined surfaces. The resistance which the material exerts against the tool determines the efficiency of the grinding operation.

A satisfactory machining cut, made with a milling, sawing, drilling or other tool on a homogeneous ductile material such as a metal, removes a long uniform chip or curl. The cutting edge shears through the material, leaving a groove with smooth sides. The tool, in this case, is appreciably harder than the material being cut.

This same tool will not perform the

same smooth operation on a piece of glass fiber-reinforced plastic because:

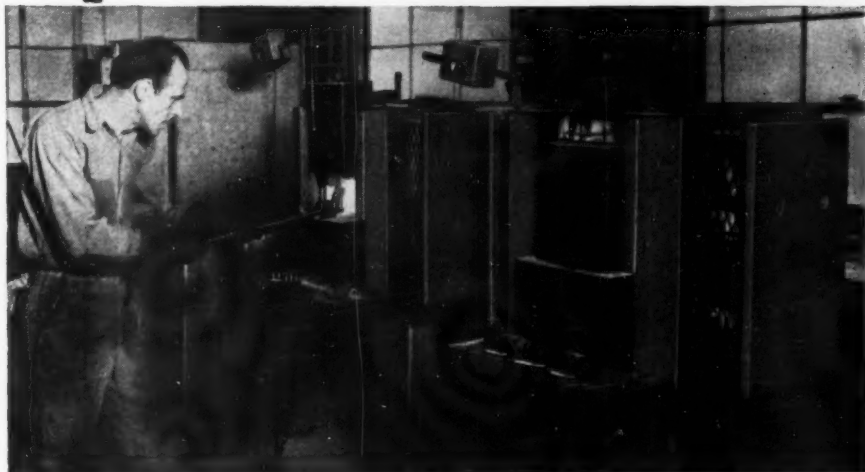
1. The tool passes through the plastic portion with ease, but when it encounters a glass fiber, tears its way through, resulting in a ragged section in the wall of the groove.
2. The material is harder than the tool; consequently, dull tools result.

A characteristic of glass-reinforced plastics is their relatively low resistance to abrasion. From the standpoint of machining and grinding, this characteristic becomes a virtue, thus most operations which can be performed with an abrasive tool can be done more economically.

Compare the performance of a high speed steel circular saw with that of a glass fabric-reinforced resinoid grinding wheel in the cutting of glass-melamine electrical laminates. The saw, which costs \$16 to \$18 new, performs for about 2 hours, before resharpening. It may be resharpened some 25 to 30 times, at \$2 per sharpening. The abra-



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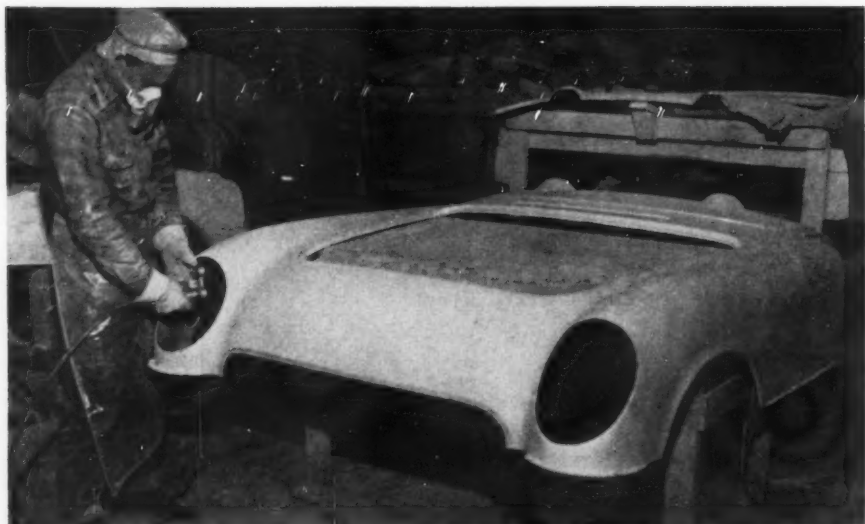


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**Deburring the inside of the headlight opening** of a Chevrolet Corvette autobody, made from glass fiber-reinforced plastics, at Lunn Laminate Company, Ashtabula, Ohio. The operator is using Carborundum's 100-200 Portabelt grinder in conjunction with 80-grit silicon carbide waterproof cloth.

**Silicon carbide resinoid cut-off wheels** are used at Atlas Plastics, Inc., Buffalo, in cutting hexagonal shaped electrical relay covers made from glass fiber-reinforced plastic. The material lends itself to this application because of good electrical and moisture resistance properties.



sive wheel, on the other hand, costs only \$2 initially. Its effective life is also about 2 hours, in which period of time it removes as much volume of material as the saw.\*

In the sanding or grinding of many materials, including metals, woods, protective and decorative coatings, etc., the life of an abrasive product is limited by the loading of the cutting surface. Except for a few instances, where polyester resin surfaces are incompletely cured, loading is not a serious problem in the grinding of reinforced plastics.

Most of the dust is dry and does not smear over the abrasive. That which does accumulate is readily removed by a blast from an air hose.

Abrasive products are obtainable in two forms:

1. Bonded abrasives, which include

grinding wheels, cut-off wheels and abrasive stones.

2. Coated abrasives, which include flat sheets, belts and discs.

In the metalworking industries, the bonded products are generally used for heavy stock removal, precision grinding and surface finishing. Coated products find extensive use for grinding of welds, grinding rough edges, deburring and polishing. In woodworking, coated abrasives are employed in heavy stock removal as well as surfacing.

In the glass-reinforced plastics industry, silicon carbide resinoid cut-off wheels are recommended for most major cutting, trimming and turning

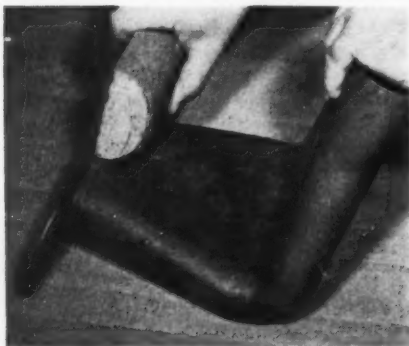
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\*Data reported by Dr. Ralph Witt, Johns Hopkins University.

**Removing grooved sections** in the Chevrolet Corvette glass fiber-reinforced plastic body, with Carborundum's MX straight wheel A24FX2. The MX wheel is made of uniformly graded abrasive grain intermingled with cotton fibers and held together with a strong organic bond. The operation is performed at Lunn Laminate Company, Ashtabula, Ohio.



**Sanding surface imperfections** on the Chevrolet Corvette glass fiber-reinforced autobody with Carborundum's D2 sander pad. The operator is using a 36 grit aluminum oxide resin sander disc in this operation, which is shown being performed at Lunn Laminate Company, Ashtabula, Ohio.



**Hand sanding corner areas** of an aircraft heating duct component made from glass glass fiber-reinforced plastic. Photo taken at Atlas Plastics, Inc., Buffalo.

operations. The cut-off wheels that will prove most useful, however, are the glass fiber-reinforced and cotton fiber-reinforced types. They may be used on either portable or bench mounted tools. These wheels may be used in the cutting of patterns having curved lines 3 in. in diameter. For less than 3 in. diameters, hand sawing is necessary.

Reinforced cut-off wheels have three outstanding features: 1. They have sub-

stantial strength; 2. they allow a high speed of cut; 3. they have a long life as compared with metal saws.

There are many operations in which surface or edge finishing is required. Various types of abrasive products are available to the fabricator which will perform these operations efficiently, particularly when used in conjunction with the proper mechanical equipment. Although a few minor finishing jobs can be accomplished by hand sanding, both time and money will invariably be saved through the use of mechanical sanding equipment.

Surfacing problems in the reinforced plastics industry are encountered in three areas:

1. In preparing a surface for coatings.
2. In removing wrinkles and other blemishes.
3. In removing light flash or smoothing rough-cut edges.

In preparing a surface for coatings, two factors are important. First, in order to obtain good adhesion between the paint film and the surface, all mold lubricant must be removed. Second, even though a parting film of cellophane or polyvinyl alcohol is used, most coatings will adhere better if the top



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**Surface finishing of this complex shape fume duct,** made from glass fiber-reinforced plastic, is simplified by use of the Flexbac pad. Due to its cushion-type, resilient rubber pad construction, the Flexbac pad sands flat surfaces and concave and convex contours with ease. Photo courtesy Atlas Plastics, Inc., Buffalo.

surface of the plastic is removed.

Such a surfacing operation is best accomplished with a Flexbac or Fastcut pad and waterproof paper discs. It may be performed either wet or dry. When done wet, a stream of water is used to eliminate dust as well as to decrease the loading of the abrasive with abraded material. In this case an air driven grinding head is recommended.

The Flexbac pad consists of a sponge rubber disc,  $\frac{3}{4}$  in. thick, attached to a conventional 7 in. sander pad. The ab-



**Surface grinding an aircraft heating and ventilating duct,** made from glass fiber-reinforced plastic, with the Versabelt grinder. High strength and light weight characteristics of the plastic make it suitable for this application.

rasive disc is held to the face of the rubber pad by means of a pressure-sensitive adhesive.

Due to its cushion-type, resilient rubber pad construction, the Flexbac pad sands contours better than any other mechanical tool, because it follows convex and concave curves with ease. Moreover, the pressure-sensitive adhesive permits easy removal of discs.

In repair work, the Flexbac pad is unsurpassed as a feather-edger. No point pressure is developed during use, and a feathered edge is obtained.



**Removing flash** from the tail-light assembly of the Chevrolet Corvette glass fiber-reinforced plastic body, at Lunn Laminate Company, Ashtabula, Ohio. The operator is using Carborundum's Flexbac pad, in conjunction with 80 grit silicon carbide abrasive cloth. He is employing the portable tool as a stationary tool by clamping it to the work bench.

The Fastcut pad is similar in construction to the Flexbac pad, except that the pad is of slightly harder rubber and therefore produces a more aggressive grinding action. The pad face takes an 8 in. paper disc and the backing sander pad is 5 in. in diameter.

The recommended procedure for using the Fastcut and Flexbac pads is to adhere a waterproof paper disc to the surface and to sand, using a slow speed, 1500 r.p.m. air tool. To get water to the job, for wet sanding, a 1/4 in. line, equipped with a thumb valve, can be attached to the tool.

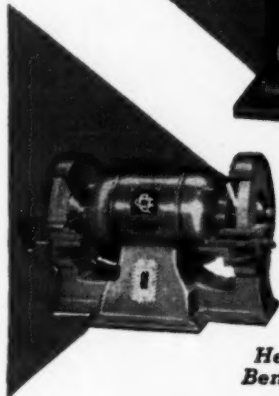
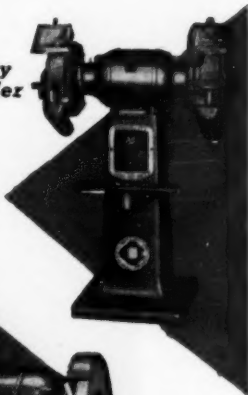
In the removal of wrinkles and surface blemishes, there are three tools available, the use of which depends upon the type and size of the workpiece.

For large surface areas, such as the top of a car body, the Flexbac pad proves most useful. For the curved surfaces of automobile fenders, for example, there is also available the Port-A-Belt portable belt grinder.

This belt sander permits the use of

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abrasive belts on straight-spindle air and electric portable tools. It consists of an idler pulley, a supporting mechanism and a contact wheel, and is particularly suited for the awkward, hard-to-get-at jobs encountered in autobody fabrication.

Available in two sizes, one using a 2 x 20 in. belt and the other a 1 x 12 in. belt, the portable belt sander is useful in many applications. With it, operating

costs have been reduced 50 percent in some cases due to the fact that: 1. More abrasive surface is available; 2. the abrasive surface is completely utilized. Freedom from chatter, smoothness of finish, and ease of handling are other features which add to the usefulness of the sander.

Grinding is done on either the surface of the belt over the contact wheel or on the slack-of-belt between the



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wheel and the pulley. For raised blemishes, the wheel surface is used, while for larger areas for mirror finishing, the slack-of-belt technique is employed.

A third grinding tool available is the Versabelt multi-purpose belt grinder, which is most useful in the abrasive machining of small parts. This machine possesses all-round utility. The unit can be easily set up to function vertically, horizontally or at any angle in-between, in increments of 15 degrees.

This unusual degree of flexibility permits the Versabelt grinder to be used for a number of grinding operations, including tilted platen, off-hand, vertical platen, slack-of-belt and contour grinding. It can be adjusted at the most convenient height for the operator in either standing or sitting positions.

In removing flash and sanding rough edges, both the Port-A-Belt grinder and the Versabelt stationary unit are recommended, depending on the job. For a large regular shape, such as a laundry tub, the portable tool may be mounted on a jig so that the piece may be removed from the press, placed on a turntable and fed by hand under the contact wheel. For small parts, the stationary tool may be used by a single operator to trim pieces as soon as they are cured.

Both coated and bonded abrasives are available in various abrasive types and grit sizes. Machining and finishing are technical problems. The proper selection of abrasives and the tools with which to use them can speed production and cut costs.

The End

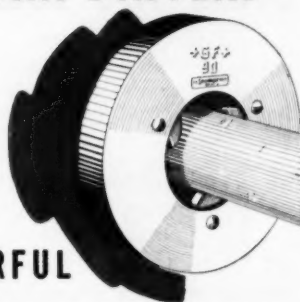
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# When Drilling 1-1/2" to 5" Holes Spade Drills Are Economical . . . Efficient\*

By **Wm. F. Schleicher**, Editor

SPADE drills are not new; in fact, the earliest drills were spade drills held in a lathe. With the advent of twist drills, spade drills were no longer practical except on very small work and on large work. While the small spade drills are in common use today, it was not until a few years ago that the spade drill again came into prominence for drilling holes larger than one inch. A typical example of the use of a small spade drill is shown in figure 1. Here, holes of .007" diameter are being drilled in a diesel engine fuel injector cup.

Some years ago the Conner Company of Detroit developed and marketed a spade drill in sizes above one inch. They developed a standard holder into which a wide variety of spade drills were fitted, thus permitting the use of 256 drill sizes in only eight holders. The advantages of this are important to the shop which needs to drill large holes on a non-production basis. It is certainly easier to have 256 spade drills on hand and eight holders for any drilling operation from 1 1/64 inch to 5 inches, than to purchase a special twist drill for

every large drilling job as it comes along, or by finish boring a large hole. This could become expensive, especially if only a few large-sized holes need to be drilled.

In August of 1953 the manufacturing and sales rights of the Conner spade drills and holders were purchased by the Gairing Tool Company of Detroit.

Before discussing the spade drills in detail it might be well to draw a comparison between them and twist drills. Twist drills are not challenged by spade drills except in large holes, deeper holes and in the tough and hard materials.

Both twist and spade drills have two cutting edges, separated by a dead center, terminating in a chisel edge. In this center, metal is removed by attrition only.

In the twist drill the area of the dead center extends over the full length of the drill body to form the web, separating the flutes, and made wider toward the shank to form the "web cone." It is mainly the web cone that has to

**\*Reprints of this article for handy filing are available.**

withstand the various stresses to which the drill is subjected. The heavier sections in back of the lands run spirally about the center line (which in themselves would not take the end thrust), and because they have much greater developed length are proportionally more subject to torque and bending stresses.

In the spade drill, cross sectional views show its strength concentrated above the center line, backing up the drill directly to take the end thrust and having all its strength in direct line between drill point and shank. It is less subject to torque and bending.

Added strength is gained by using high speed steel for the cutter only, and for the holder an alloy to withstand the stresses to which the holder is mainly subjected. Figure 2 shows drawings of spade drills and the spade drill holders.

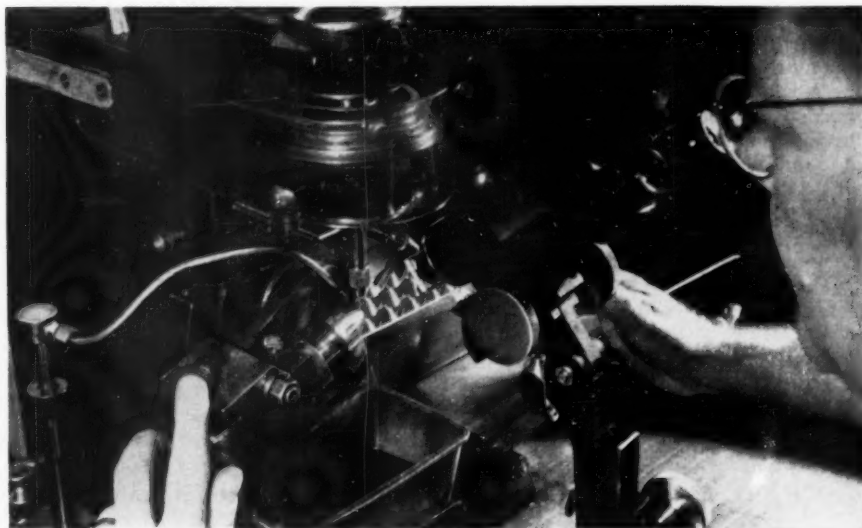
Comparing the spade drill to the twist drill, we find heavier cross sectional areas, with the strength concentrated

along a direct line between drill point and shank. This results in: greater resistance to end thrust, the better to drill from the solid; resistance to torque, minimizing the vibration that often causes chipping of cutting edges and breaking of drills; greater resistance to bending, resulting in the drilling of straighter holes and making it easier to drill at an angle to the work surface.

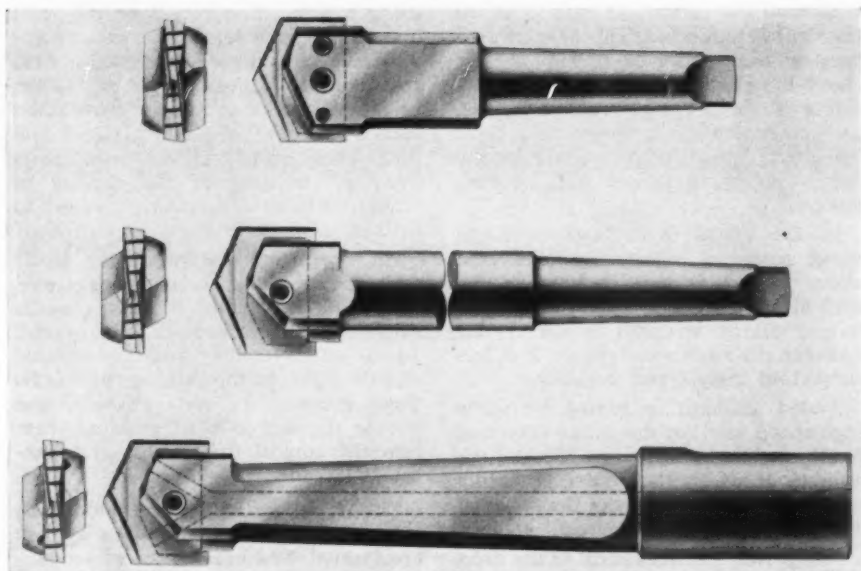
An important feature of the spade drill is the chip breaker grooves, figure 3. These chip breaker grooves cause several narrow chips to be cut. To be effective, they must be ground exactly right. In the case of twist drills these grooves are not provided, and due to the difficulty of grinding them into the conical drill point, manufacturers discourage their use.

The "chip curl," ground along the cutting edges, breaks the chips as they are formed. The importance of producing chips of ideal size and shape will be understood and appreciated.

**1. Drilling .007" holes** in injector cups for diesel engines, using a spade type drill. These drills are sometimes referred to as shovel drills.







**Cross sectional views** of spade drills and holders. They are recommended for shallow, medium and deep holes.

### Speeds and Feeds

It is generally impractical to suggest definite feed and speed facts about spade drills. Too many factors influence the most efficient selection of feeds and speeds: material to be cut; rigidity of the machine; coolant. To achieve maximum production per grind there is usually a feed and speed for each setup, as well as an optimum penetration between grinds. The feed is a definite element to be determined in order to obtain the desired surface finish. Something like a rule-of-thumb may be applied: When a lesser-quality surface finish is permissible, the feed usually can be greater than that required for a finer finish.

Maximum feeds and speeds can usually be obtained with a liberal supply of coolant.

In deep drilling it is usually neces-

sary to adjust feeds and speeds so that the chips formed will be flushed out in continuous expulsion, permitting uninterrupted drilling. The time saving advantage of not retracting the drill is evident, as is the importance of forming chips of uniform size. When holes are greater than four to five diameters deep, coolant pressures up to 300 p.s.i. are frequently required.

A good rate of feed for all general purpose tryout drilling of tough alloy steel is .008" per revolution, while .012" is recommended as an initial tryout for mild low carbon steels.

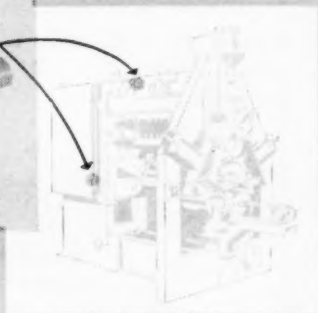
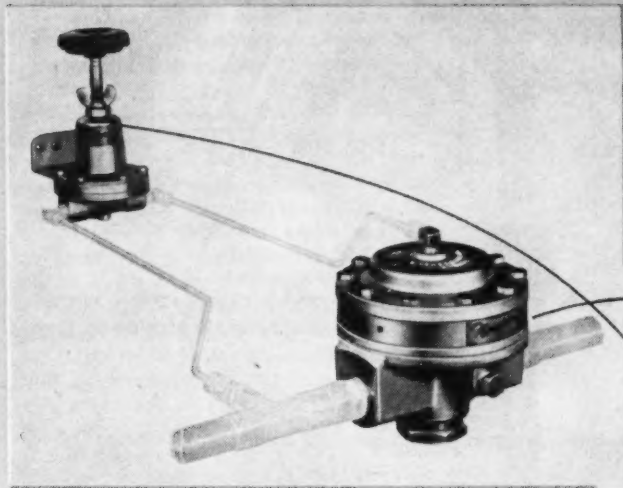
Initial drilling, using a high speed steel spade drill, may be started at a tryout speed of about 55 surface feet per minute. The related factors characteristic of the job will indicate whether or not this speed can be increased.

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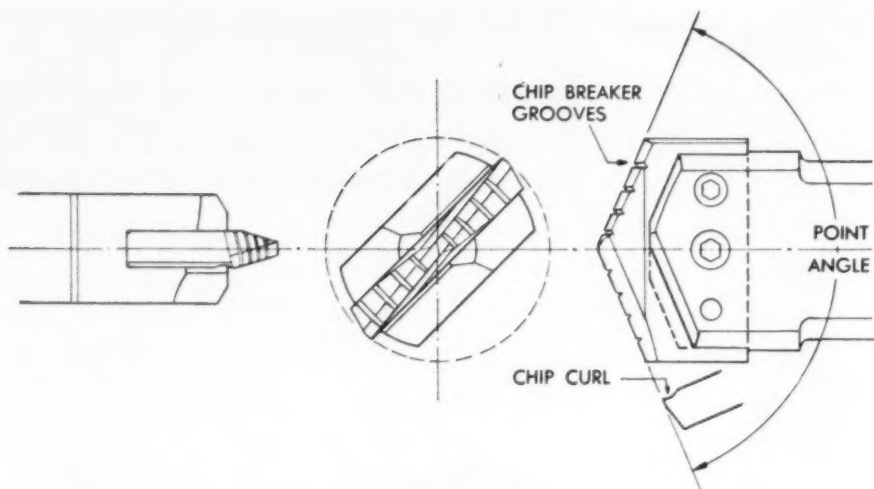
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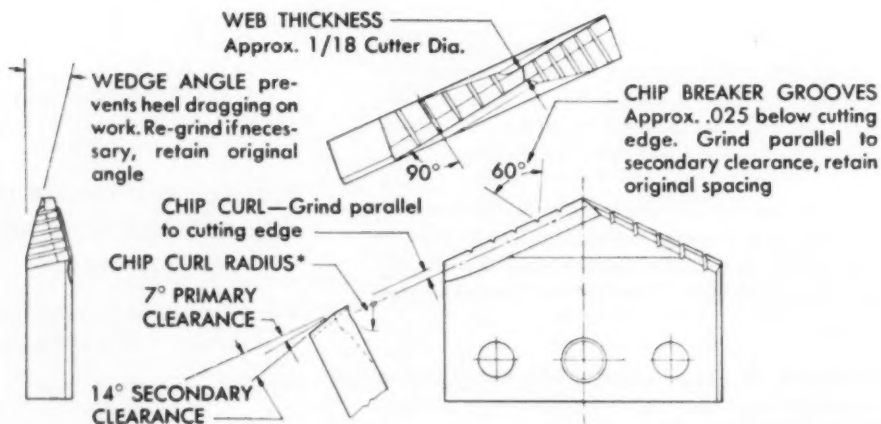
**WRITE NOW FOR NEW  
CATALOG No. 600**





**3. The heart of the cutter** is the chip breaker grooves which cause several narrow chips to be cut. "Chip curl," ground along the cutting edges, breaks the chips as they are formed.

**4. The regrinding of spade drills.** Either a special grinding fixture or a grinding arbor may be used.



\*When drilling hard steel, CHIP CURL RADIUS should vary from  $\frac{1}{8}$  for 1" dia. cutter to  $\frac{3}{8}$  for 4" dia. cutter. When drilling soft steel, make radius slightly smaller

## Grinding of Spade Drills

When the surface grinder is used, a special grinding fixture is recommended for a fast, foolproof way to regrind the clearances along the cutting edges of spade drills. Only one fixture is needed to hold the various drill cutters of all sizes.

The fixture compounds the required angles. The 7° primary clearance is ground with the cutter clamped to one side of the fixture, the 14° secondary clearance by using the other side. The cutter is clamped so that its circular land is held firmly against the conical button. After one cutting edge has been backed off, the cutter is turned about to insure perfect centering of the cutting edges. The same results can be achieved by a combination of angle plates and a tapered button stop.

When the universal tool and cutter grinder is used, grinding arbors will hold the spade drill cutters. Each arbor will hold cutters in only one range of diameters. The work head of the grinder will compound the required cutting angles shown in figure 4, and will also enable the user to grind the circular land on the periphery of the cutters, if necessary.

At the present time The Gairing Tool Co. offers two types of spade drills: types X and Y. Both types have identical cutting edges, their only difference being in the way they are attached to the holder. Selection should, therefore, be based on the holder.

Type X is recommended for shallow holes only. These drills are suited for use in horizontal boring mills, engine lathes, horizontal and vertical engine lathes, and drilling machines. On jobs where coolant flow and chip removal might be a problem, this drill is used vertically so the coolant will keep the hole filled up.

Type Y holders are recommended for shallow to medium holes and are used on the same machines as the type X.



## It's Republic's stock-in-trade

Confidence that every spec will be closely adhered to—that the next gage will be just as perfect as the last—consistency in quality—this is the important thing that appeals to quality control men and the reason so many of them regularly specify Republic.

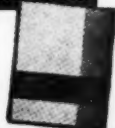


- Thread Plugs and Rings
- Plain Plugs and Rings
- Pipe Plugs and Rings
- Reversible thread and plain plugs
- Measuring wires
- Thredmasters



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SPEED**

**TWO FLUTE**

**THREE FLUTE**

**FOUR  
FLUTE**

**LONG  
LIFE**



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3374 West 140th St., Cleveland 11, Ohio

When oil hole holders are used with the type Y cutters, holes of still greater depth can be handled. Coolant, forced through the inside of the holder, carries the chips from the bottom of the hole and flushes them out. Select these oil hole holders for continuous work, when uninterrupted production is essential. All type Y holders have the leading side of the head cut away sharply and have a smaller body diameter to allow easier flow of coolant and chips. This type of holder must be used with greater consideration for proper speeds and feeds. On production jobs, however, greater ease of changing cutters enables the operator to have a number of re-ground cutters on hand.

The End

Please mention **MACHINE and TOOL BLUE BOOK** when writing advertisers, or use the handy Reader's Service Card opposite page 64.



FOR DIMENSIONAL CONTROL OF INTERNAL "O" RING GROOVE

Write for complete Catalog 53A

Shown: Model B-400  
1½" to 2½"  
Bore Dia. Range

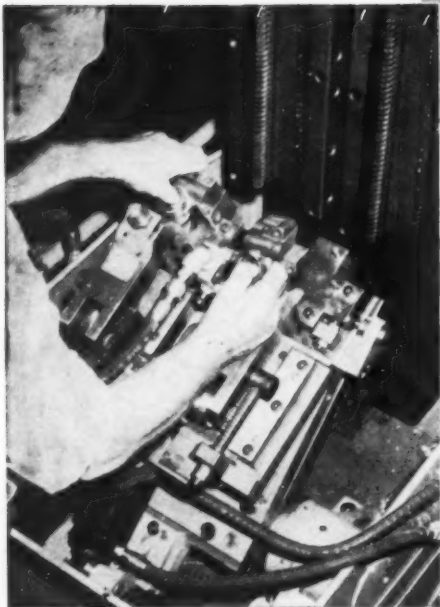
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GAGES

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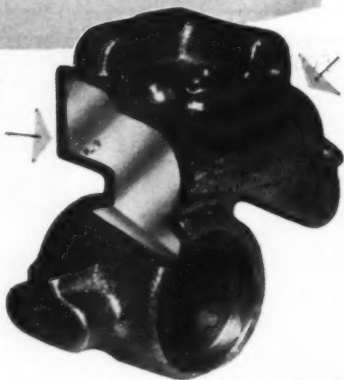


**FIXTURE  
AUTOMATICALLY TILTS,  
CLAMPS PARTS for  
GENERATING TYPE  
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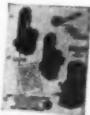
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**ANN ARBOR, MICHIGAN**

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# BLUE BOOK'S Know How Reference Sheets

## Rules of the circle

### To Find Circumference—

Multiply diameter by 3.1416.  
Or divide diameter by 0.3183.

### To Find Diameter—

Multiply circumference by 0.3183.  
Or divide circumference by 3.1416.

### To Find Radius—

Multiply circumference by 0.15915.  
Or divide circumference by 6.28318.

### To Find Side of an Inscribed Square—

Multiply diameter by 0.7071.  
Or multiply circumference by 0.2251.  
Or divide circumference by 4.4428.

### To Find Side of a Square of Equal Area—

Multiply diameter by 0.8862.  
Or divide diameter by 1.1284.  
Or multiply circumference by 0.2821.  
Or divide circumference by 3.545.

### Square—

A side multiplied by 1.4142 equals diameter of its circumscribing circle.  
A side multiplied by 4.443 equals circumference of its circumscribing circle.  
A side multiplied by 1.1284 equals diameter of a circle of equal area.  
A side multiplied by 3.545 equals circumference of an equal circle.

### To Find the Area of a Circle—

Multiply circumference by one-quarter of the diameter.  
Or multiply the square of a diameter by 0.7854.  
Or multiply the square of circumference by 0.07958.  
Or multiply the square of one-half diameter by 3.1416.

### To Find the Area of an Ellipse—

Multiply the product of its axis by .7854.  
Or multiply the product of its semi-axis by 3.14159.

Contents of cylinder = area of end  $\times$  length.

Contents of wedge = area triangular base  $\times$  altitude.

Surface of cylinder = length  $\times$  circumference  $\div$  area of both ends.

Surface of sphere = diameter squared  $\times$  3.1416, or = diameter  $\times$  circumference.

Contents of sphere = diameter cubed  $\times$  0.5236.

Contents of pyramid or cone, right or oblique, regular or irregular = area of base  $\times$  one-third altitude.

Area of triangle = base  $\times$  one-half altitude.

Area of parallelogram = base  $\times$  altitude.

Area of trapezoid = altitude  $\times$  one-half the sum of parallel sides.

# BLUE BOOK'S Know How Reference Sheets

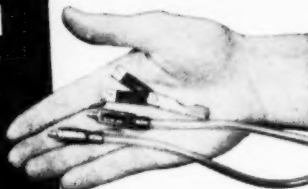
## Circle areas in eighths of a unit

Diameter	Circumference	Area	Diameter	Circumference	Area
1/32	.09817	.0007	1	3.14159	.7854
1/16	.19635	.0030	1- 1/16	3.33794	.8866
3/32	.29452	.0069	1- 3/16	3.73064	1.1075
3/16	.58904	.0276	1- 5/16	4.12334	1.3530
7/32	.68722	.0375	1- 7/16	4.51604	1.6230
9/32	.88357	.0621	1- 9/16	4.90874	1.9175
11/32	1.07992	.0928	1-11/16	5.30144	2.2365
13/32	1.27627	.1296	1-13/16	5.69414	2.5802
9/16	1.76715	.2485	2	6.28319	3.1416
19/32	1.86532	.2768	2- 3/16	6.87223	3.7583
21/32	2.06167	.3382	2- 5/16	7.26493	4.2000
11/16	2.15984	.3712	2- 7/16	7.65763	4.6664
23/32	2.25802	.4057	2- 9/16	8.05033	5.1572
25/32	2.45437	.4793	2-11/16	8.44303	5.6727
27/32	2.65072	.5591	2-13/16	8.83573	6.2126
29/32	2.84707	.6450	2-15/16	9.22843	6.7771

## Squares, square roots, cubes and cubic roots

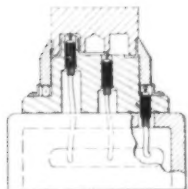
No.	Sq.	Cube	Sq. Root	Cube Root	No.	Sq.	Cube	Sq. Root	Cube Root
1	1.000	1.000	1.000	1.000	26	676	17576	5.099	2.962
2	4	8	1.414	1.259	27	729	19683	5.196	3.000
3	9	27	1.732	1.442	28	784	21952	5.291	3.036
4	16	64	2.000	1.587	29	841	24389	5.385	3.072
5	25	125	2.236	1.710	30	900	27000	5.477	3.107
6	36	216	2.449	1.817	31	961	29791	5.567	3.141
7	49	343	2.645	1.913	32	1024	32768	5.656	3.174
8	64	512	2.828	2.000	33	1089	35973	5.744	3.207
9	81	729	3.000	2.080	34	1156	39304	5.831	3.239
10	100	1000	3.162	2.154	35	1225	42875	5.916	3.271
11	121	1331	3.316	2.224	36	1296	46656	6.000	3.301
12	144	1728	3.464	2.289	37	1369	50653	6.082	3.332
13	169	2197	3.605	2.351	38	1444	54872	6.164	3.362
14	196	2744	3.741	2.410	39	1521	59319	6.245	3.391
15	225	3375	3.873	2.466	40	1600	64000	6.324	3.420
16	256	4096	4.000	2.519	41	1681	68921	6.403	3.448
17	289	4913	4.123	2.571	42	1764	74088	6.480	3.476
18	324	5832	4.242	2.620	43	1849	79507	6.557	3.503
19	361	6859	4.358	2.668	44	1936	85184	6.633	3.530
20	400	8000	4.472	2.714	45	2025	91125	6.708	3.556
21	441	9261	4.582	2.758	46	2116	97336	6.782	3.583
22	484	10648	4.690	2.802	47	2209	103823	6.855	3.608
23	529	12167	4.795	2.843	48	2304	110592	6.928	3.634
24	576	13824	4.899	2.884	49	2401	117649	7.000	3.659
25	625	15625	5.000	2.924	50	2500	125000	7.071	3.684

# FOR LOW COST INSPECTION "PLUNJET" CARTRIDGES In Your Own Air Gaging Fixtures

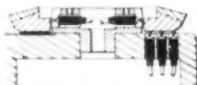


At low cost you can design and build your own air gaging fixtures with PLUNJET gaging cartridges, available from stock. Size  $\frac{3}{8}$ " square or cylindrical,  $1\frac{1}{2}$ " or  $1\frac{3}{4}$ " long. Tolerance range .100" to .001". Amplifications 62.5 to 5000. High accuracy at low cost.

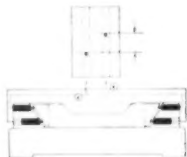
Gage Division, The Sheffield Corporation, Dayton 1, Ohio



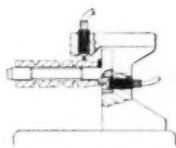
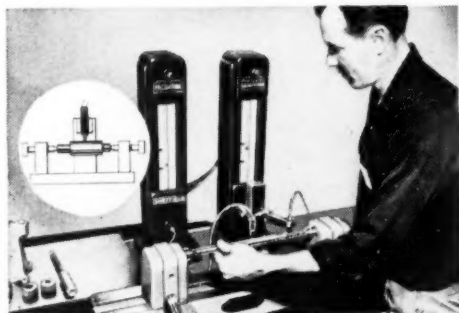
Depth and shoulder height



Inside diameter and flatness



Diameter and Taper



Concentricity and squareness

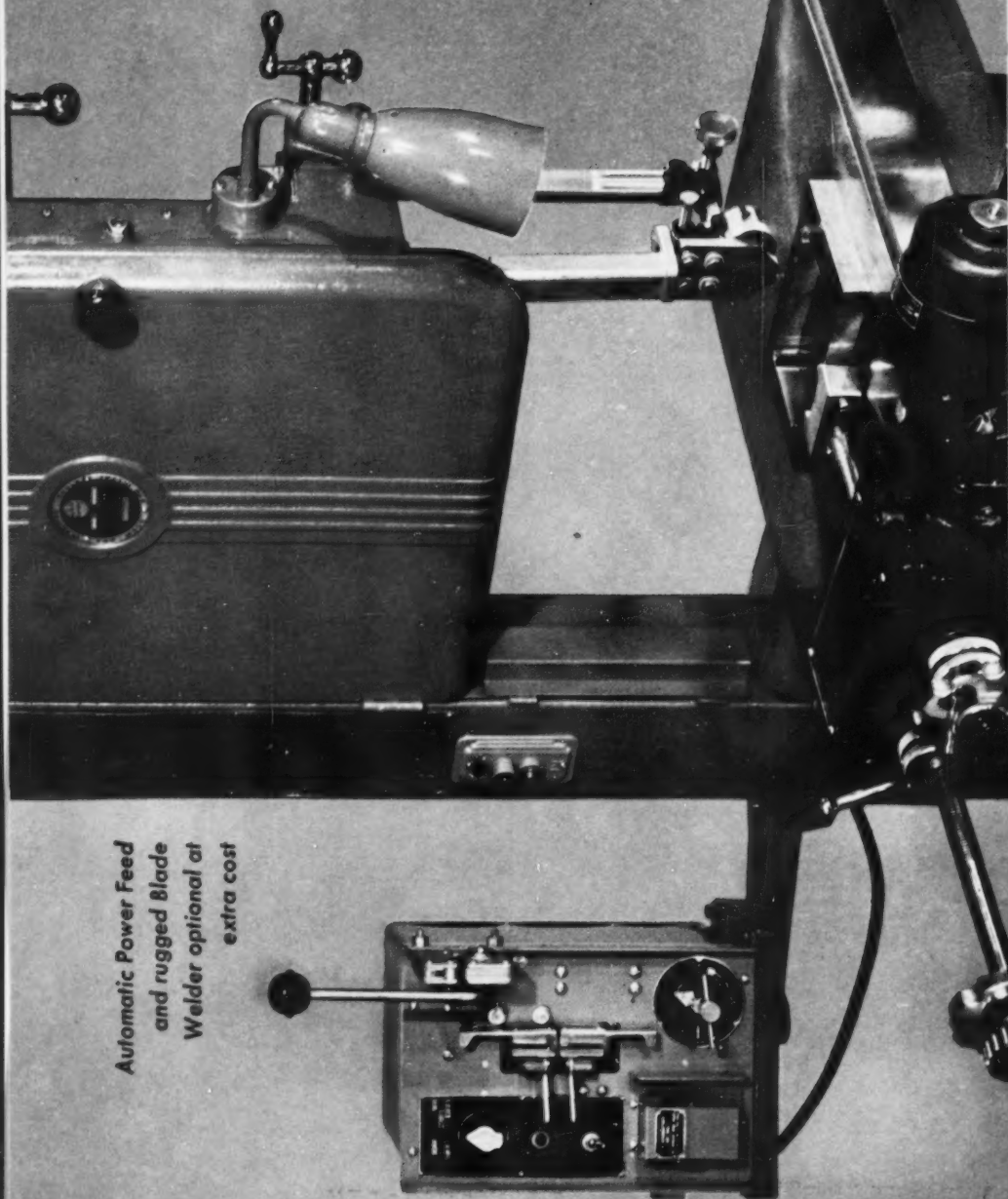
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# SHEFFIELD

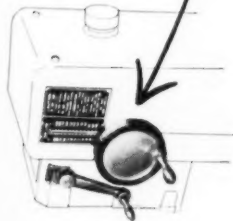
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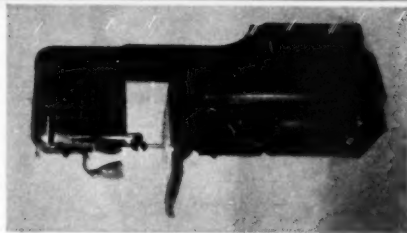
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# ASTE's 1954 Industrial Exposition Attracts Record Number of Exhibitors

UNPRECEDENTED INTEREST in "tooling for competition" has resulted in a record-breaking number of exhibitors and amount of exhibit space for the 1954 ASTE Industrial Exposition scheduled for Philadelphia's Convention Center April 26 through 30.

Latest figures on the ninth biennial exposition sponsored by the 28,000-member American Society of Tool Engineers reveal that more than 480 exhibitors will occupy approximately 155,000 square feet. The 1954 Exposition will be the largest in the history of the series which started in Detroit in 1938.

Exhibit space was sold out in a matter of weeks after the official announcement of the 1954 event. Conrad, executive secretary of ASTE, said the deluge

of space applications received by the Society resulted in a reshuffling of the space allocated for technical meetings in order to use more of that space for exhibits.

"Every available square inch of exhibit space will be used. Yet, we have provided for wider aisles than we had in Chicago so that the throng of engineers and executives attending the event will be able to move more freely from booth to booth," Conrad added.

## **New developments**

An outstanding feature of the Philadelphia event will be the many new machines, tools, and processes. Conrad said numerous exhibitors had advised him they were rushing work on new equipment in order to have it ready

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## **For your convenience**

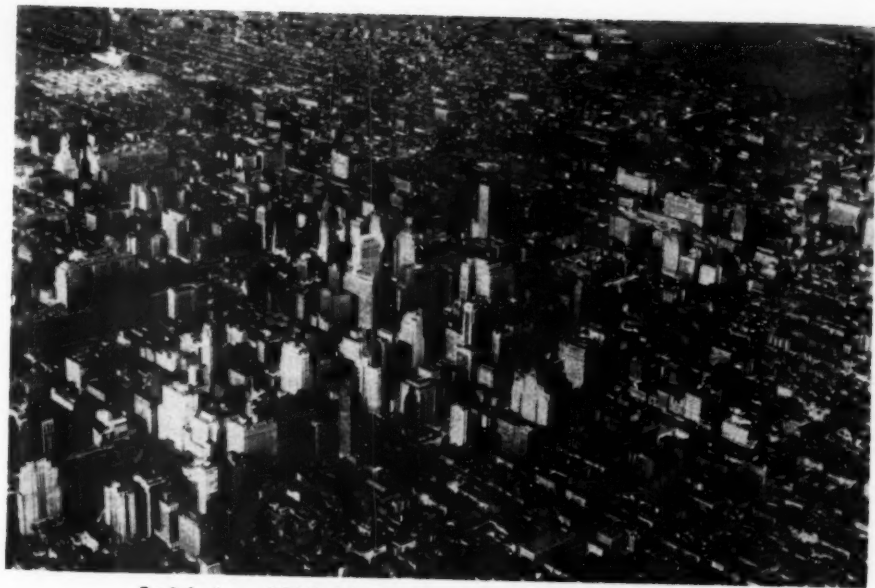
there will be frequent special bus service between Philadelphia Convention Center and the following major hotels:

Bellevue-Stratford Hotel  
Benjamin Franklin Hotel

You will be able to register either at Convention Center or at the special ASTE Information Desks that will be set up in the Benjamin Franklin and Bellevue-Stratford Hotels.

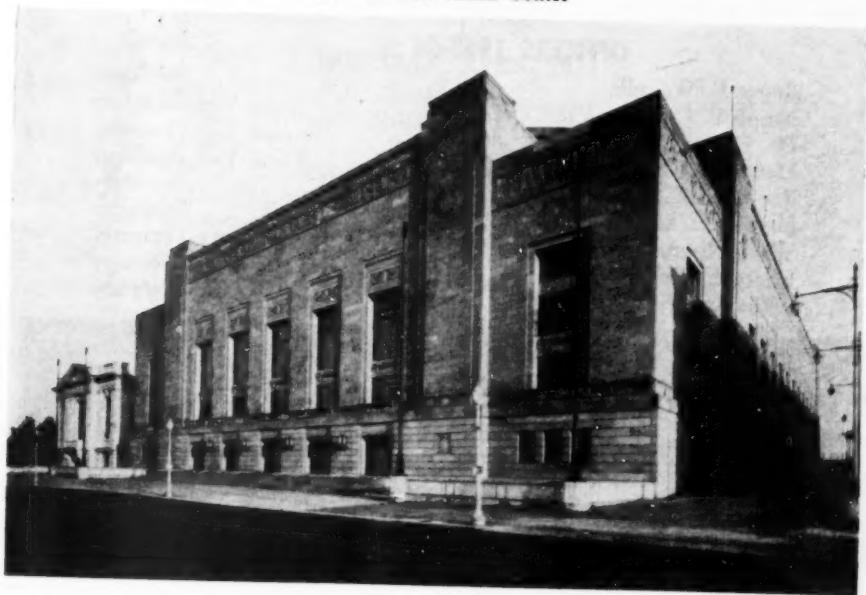
Registration covers both Exposition and Conferences.

**EXPOSITION HOURS**  
**9:00 A.M. to 5:00 P.M.**



Aerial view of Philadelphia, host to the ASTE 1954 Exposition.

View of Convention Center



April, 1954

for the ASTE show.

Newest type of cutting tools, ultra-fast and extreme-precision machine tools and their accessories, giant presses, and the latest developments in work-holding and other devices will be on display. All are designed to increase precision production, while relieving operators from manual drudgery.

An entire hall of the Convention Center will be occupied by manufacturers of precision gaging and inspection equipment ready to demonstrate newest means and methods of attaining and maintaining the high quality control accuracy needed to meet stiff competition.

Throughout the lower halls will be found the newest in metal cutting machines and tools for faster machining both of the standard materials and of the new tougher materials coming into use in industry today. Grinding and finishing equipment and supplies, presses, abrasives, cutting fluids—just about everything used in the fabricating industry will be displayed.

## Industrial conferences

Continuing its policy of presenting timely conferences and discussions on the latest technical advances and production problems, the ASTE has arranged for 35 conferences and panel discussions.

More than a year of planning has been devoted to making the conferences and panel discussions timely and comprehensive. Top engineers and executives in the fields of plant management, automation, precision control, cutting and grinding and other phases of manufacturing were sought out. Each speaker is a recognized expert in his field.

Topics for the conferences range through the entire field of manufacturing practices, from first designs of the production to its final inspection "OK." Some dramatic highlights will be: full automation, employee planning participation, and industrial uses of Nucleonics. Production problems will be analyzed. Practically all the "stiff competition" technical developments will be covered by at least one paper.

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Wayne Ewing



H. E. Conrad

### **NATIONAL SOCIETY FUNCTIONS TUESDAY, APRIL 27**

- 8:30 A.M. Canadian Chapter Breakfast**  
Betsy Ross Room—Benjamin Franklin Hotel
- 7:30 P.M. President's Reception and Caucus**  
Crystal Ballroom—Benjamin Franklin Hotel

### **WEDNESDAY, APRIL 28**

- 8:30 A.M. President's Breakfast for National Delegates**  
Betsy Ross Room—Benjamin Franklin Hotel
- 12:00 P.M. House of Delegates Luncheon**  
Crystal Ballroom—Benjamin Franklin Hotel
- 1:00 P.M. House of Delegates Meeting**  
Crystal Ballroom—Benjamin Franklin Hotel

### **THURSDAY, APRIL 29**

- 9:00 A.M. Board of Directors Meeting**  
Crystal Ballroom—Benjamin Franklin Hotel
- 12:00 P.M. Board of Directors Luncheon**  
Crystal Ballroom—Benjamin Franklin Hotel
- 7:00 P.M. Annual Meeting Banquet and Installation of National Officers**  
Ballroom—Bellevue-Stratford Hotel  
(For banquet reservations, at \$7.50 per plate, send your check to  
ASTE Headquarters in Detroit.)

### **FRIDAY, APRIL 30**

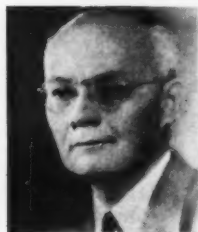
- 9:00 A.M. Board of Directors Meeting**  
Betsy Ross Room—Benjamin Franklin Hotel
- 12:00 P.M. Board of Directors Luncheon**  
Betsy Ross Room—Benjamin Franklin Hotel
- 12:00 P.M. Educators-Engineers Luncheon and Conference**  
(to 4 P.M.) Poor Richard Room—Benjamin Franklin Hotel
- Crystal Ballroom—Benjamin Franklin Hotel**
- ASTE HEADQUARTERS ROOM—Independence Room**  
Benjamin Franklin Hotel



## Program of Conferences



W. N. Parker  
Rolled Extrusions



F. R. Simpson  
Rubber-Clamping



A. P. Neumann  
Blast Cleaning



W. L. McCracken  
Ultrasonic  
Techniques

### MONDAY, APRIL 26

#### Room 300—Convention Center

- 1:30 P.M. Solutions to Problems in Producing Thin-Walled Parts.**  
(Those fragile cylindrical parts with walls as thin as 0.001 inch that are tough to solder, braze or weld.)  
**1a.—“Rolled Extrusion of Thin-Walled Parts” (22T1).** W. N. Parker, Development Engineer, RCA Victor Tube Div., Radio Corporation of America.  
**1b.—(2:15) “Rubber-Clamping Assembly of Thin-Walled Parts” (22T2).** F. R. Simpson, Director of Research and Development, Kuljian Corporation.

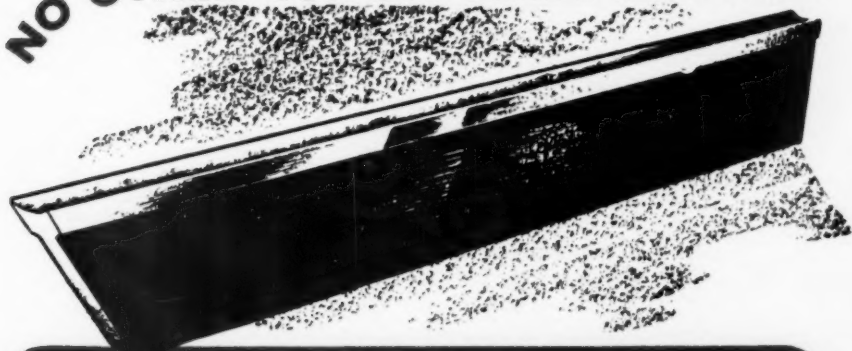
#### Arena Conference Room—Convention Center

- 1:30 P.M. What's New and Economical with Surface Cleaning.**  
(Especially where you need better surface finish control or you've got to get at difficult hidden surfaces.)  
**2a.—“Surface Finish Control with Blast Cleaning” (22T3).** A. P. Neumann, Chief Engineer, Vapor Blast Manufacturing Company.  
**2b.—(2:15) “Ultrasonic Techniques in Industrial Cleaning” (22T4).** Dr. W. L. McCracken, Director of Research, Detrex Corporation.

#### Ballroom—Convention Center

- 3:00 P.M. How to Take the “Bugs” Out of Your Production Planning and Control.**  
(Experts in the areas of management, planning, and operations will answer questions on the design and use of operations process sheets, flow charts, operators' instruction sheets, machine loading schedules, and scheduling, routing, and dispatching operations, and paper work—whether large or small plant, and high or low production.)  
**3.—“Production Planning and Control” (Panel Discussion).**  
E. Kitzman, General Supt.  
Link-Belt Company

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*None can do what* **EMPIRE'S**  
**Luers Cutting-off Blade**  
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Empire Tool Co. is the **LEADER** in cut-off blade developments—backed by twenty years' experience in cut-off blade manufacture.

Cut-off blades are tools subject to conditions different from those of other tools and will perform most efficiently only when specialists' recommendations are followed.

Available from stock are blades of four types of high speed steels developed to meet the demands of cut-off operations. And on short notice you can get blades of cast alloys and tungsten carbide.

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 Grumman Aircraft Engineering Corporation  
 N. M. Perris, Senior Associate  
 Stevenson, Jordan & Harrison, Inc.  
 W. L. Tann, Chief Industrial Planning Engineer  
 Bureau of Ordnance, Navy Department  
 C. Verkler, Asst. Manager of Manufacturing,  
 Caterpillar Tractor Company  
 J. R. Weaver, Mgr. of Manufacturing and Engineering  
 Westinghouse Electric Corporation

### **Ballroom—Bellevue-Stratford Hotel**

- 8:00 P.M. How to Utilize and Develop Your Employees' Executive Potential.**  
 (Giving them a bigger part in production planning, and keeping the better men moving up the ladder. It pays big dividends.)  
 4a.—“A Program for Developing Tool Engineers Into Manufacturing Executives” (22T5). Dr. R. F. Pearse, Senior Associates, Worthington Associates, Inc.  
 4b.—(9:00) “Scanlon Employee Relations Plan at Different Production Levels” (22T6). E. M. Dowd, Exec. Vice President, LaPointe Machine Tool Company.

### **Burgundy Room—Bellevue Stratford Hotel**

- 8:00 P.M. How Research Can Help You Predict and Realize Better Machining Performance.**  
 (How to spend less on actual research and yet profit more from it.)  
 5a.—“Recent Developments in Analysis of Chip Formation” (22T7). Dr. B. W. Shaffer, Project Director, Research Div., College of Engineering, New York University.  
 5b.—(9:00) “Turning Research Can Double Your Production Per Labor Hour” (22T8). J. C. Hebert, Manager, Machine Tool Division, Jones & Lamson Machine Company.

### **TUESDAY, APRIL 27**

### **Arena Conference Room—Convention Center**

- 9:00 A.M. Quicker and More Automatic Ways of Holding All Work Materials.**



**R. F. Pearse**  
 Developing Tool  
 Engineers



**E. M. Dowd**  
 Scanlon Plan



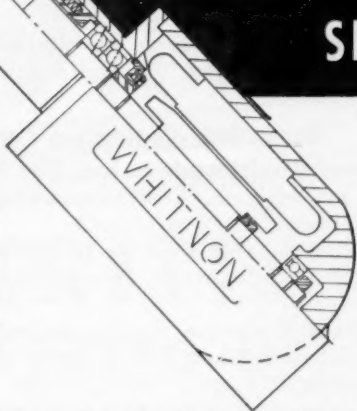
**B. W. Shaffer**  
 Chip Formation



**J. C. Hebert**  
 Turning Research

When you're *thinking*  
of REPLACING  
your old SPINDLE  
or ordering a new  
SURFACE GRINDER  
*remember Whitnon*  
SPINDLES

Heavily spring preloaded to keep spindle radially and axially rigid.—Stock Spindles are one full horse power, 3600 RPM enclosed motor, 220/440 volts, sealed in lubrication.



Sparks out fast leaving an excellent finish. — The only spindle rigid enough for crush dressing and perfect contour grinding. Constant adjustment from spring preload keeps spindle rigid regardless of wear or temperature change.

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NEW BRITAIN, CONN.



**F. G. Zagar**  
Jig Design



**R. S. Segsworth**  
Induction Heating



**P. N. Sorenson**  
Induction Heating



**E. Glick**  
Induction Heating

(Whether they are ferrous or nonferrous . . . whether you want to make a few passes or produce 1,000,000 holes an hour.)

**6a.—“Magnetic Holding of Ferrous and Nonferrous Materials” (22T9).** Frank Suchanek, Field Engineer, Hanchett Magna-Lock Corp.

**6b.—(10:00) “Jig Design for Multiple Automatic Operations” (22T10).** F. G. Zagar, Vice President and General Manager, Zagar Tool, Inc.

### **Room 300—Convention Center**

#### **9:00 A.M. Advanced Developments in Induction Heating.**

(How to keep metal temperatures under close control with reduced capital, tooling, and power costs.)

**7a.—“Process Applications for Dual-Frequency Induction Heating” (22T11).** R. S. Segsworth, Director of Research, General Engineering Co., Ltd.

**7b.—“High-Production Tooling for Induction Heating” (22T12).** P. N. Sorenson, Chief Test Engineer and C. E. Glick, Production Engineering Manager, Tocco Division, Ohio Crankshaft Co.

### **Arena Conference Room—Convention Center**

#### **1:30 P.M. How to Automatize Your Production with Special Machines.**

(Whether it's complete machining of an engine block, producing a finished cigar or tying a bow-tie without hands!)

**8a.—“How to Plan a Transfer Machine” (22T13).**

D. E. Hawkinson, Vice President, Machine Tool Sales, Greenlee Bros. & Co.

**8b.—(2:15) “Creativity in Mechanical Design” (22T14).** H. A. Oldenkamp, Director of Engineering, and L. Strauss, Project Mgr., General Engrg. Labs., American Machine & Foundry Company.

### **Room 300—Convention Center**

#### **1:30 P.M. Best Applications for Different Mechanical Assembly Techniques.**

(How to join metallic or nonmetallic materials and elements more rapidly, with only moderately skilled labor and less expensive equipment.)

for more *Accurate* cuts...  
greater *Rigidity* in

## BORING TOOLS

BORING HEADS  
BORING BARS



## Use **CRITERION** BORING EQUIPMENT

### BORING PROBLEMS? CLOSE TOLERANCE?

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### THIS COMBINATION WILL PRODUCE RESULTS

Boring heads from 1½ to 7 inch diameter. Boring tool carbide or high speed steel, ½ to 1½ inches diameter. Bore holes from ⅛ to 20 inch diameter.

Accuracy for the closest tolerance • Rigidity for the heaviest cuts • Heat-treated parts for long wear

### LARGE OFFSET SAVES TIME AND TOOL CHANGES

These tools will cut your boring costs.

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**CRITERION  
MACHINE WORKS**

**9312 SANTA MONICA BLVD • BEVERLY HILLS, CALIF.**





**D. E. Hawkinson**  
Plan a Transfer



**H. A. Oldenkamp**  
Mechanical Design



**L. Strauss**  
Mechanical Design



**V. L. Bradford**  
Fastening  
Techniques

**9a.—“Changing Trends in Mechanical Fasteners” (22T15).** W. C. Stewart, Technical Advisor, Industrial Fasteners Institute.

**9b.—(2:15) “Fastening Techniques for Small Assemblies” (22T16).** V. L. Bradford, Vice President in Charge of Sales, Milford Rivet & Machine Company.

### **Ballroom—Convention Center**

**3:00 P.M.**

#### **The Why and How of Better Tooling for Automatics.**

(There is almost always a better way to do it, whether on screw machines, turret lathes, or single- or multi-spindle automatics. If you want to improve your production tooling, let this panel help. It has both the equipment and the manufacturing know-how.)

#### **10.—“Tooling for Automatics” (Panel Discussion).**

J. L. Anderson, Chief Tool Estimator

Gisholt Machine Co.

J. S. Brozek, Superintendent, Tooling Division

Sargent & Company

E. L. Ketter

Jacobs Manufacturing Co.

F. J. McArthur, Chief Tool Engineer

Jones & Lamson Machine Company

T. H. Olson, Chief Tool Engineer

Yale & Towne Manufacturing Company

J. Prohaska, Vice President

Cleveland Automatic Machine Company

A. R. Sparrow, Charge Mach. Tool Sales

Brown & Sharpe Manufacturing Co.

### **Ballroom—Bellevue Stratford Hotel**

**8:00 P.M.**

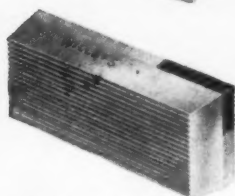
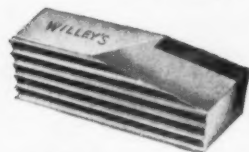
#### **New Techniques and Possibilities for Castings.**

(When can castings replace forgings for stressed structures? What about shell molding for small-scale, as well as large-scale, automatic equipment?)

#### **11a.—“The Possibilities for Castings in Airframe Design” (22T17).**

A. H. Petersen, Design Group Engineer, Lockheed Aircraft Corp.

# WILLEY'S TUNGSTEN CARBIDE TOOLS



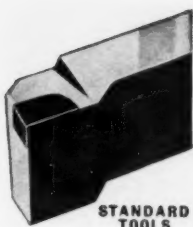
Serrated Cutter Blades,  
ground after heat treat  
for greatest accuracy.

There is a grade of Willey's metal for every requirement of those using solid or tipped tungsten carbide tools for better industrial production.

You will find Willey's a dependable source for boring bars, broaches, centers, drills, gages, mandrels, end mills, routers and cut-off tools.

Large stocks, including standard tools and tungsten carbide inserts, are always available for prompt delivery.

Standard thrufeed and in-feed centerless grinder blades from stock. Worn blades retipped and ground.



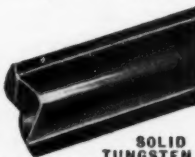
STANDARD  
TOOLS



SOLID  
TUNGSTEN  
CARBIDE REAMERS



TIPPED  
TWIST  
DRILLS



SOLID  
TUNGSTEN  
CARBIDE ROUTER BITS

## SEE OUR DEMONSTRATION

Shows mirror finishing of tungsten carbide cutting tools with Willey's diamond hand lapping machine.

**BOOTH 1455 - ASTE Show  
PHILADELPHIA**



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SOLE MARKERS OF WILLEY'S METAL

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Detroit 1, Michigan



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Mechanical Fasteners



**L. J. Bishop**  
Shell Molding



**L. S. Goldring**  
Nucleonics



**F. W. Pedrotty**  
Metal Blasting

**11b.—(9:00) "Automation of Shell Molding" (22T18).** L. J. Bishop, Vice President and Director of Engineering, Mechanical Handling Systems, Inc.

### **Burgundy Room—Bellevue-Stratford Hotel**

#### **8:00 P.M. Industrial Penetration of Atomic-Fission Discoveries.**

(Possibilities of atomic by-products in wear studies of tools, dies, gears and bearings . . . the detection of incredibly minute amounts of undesired elements in metals . . . plant production control through use of depth and thickness gages . . . non-destructive testing . . . locating of raw materials such as piped liquids and plant effluents.)

**12.—"Nucleonics Invade the Tool Engineering Field" (22T19).** L. S. Goldring, Radiochemist, Nuclear Development Associates, Inc.

### **WEDNESDAY, APRIL 28**

#### **Ballroom—Convention Center**

#### **9:00 A.M. Best Approaches to Internal Milling and Jigless Boring.**

(Pantographic milling is now available with single- or multiple-spindles, with two- or three-dimensional tracers, at speeds to 45,000 RPM. Ultra-maintained precision demands removal of manual variables; automatic work positioning and tool lock and release help achieve this end.)

**13a.—"Tracer-Controlled Pantographic Milling" (22T20).** A. D. Gunderson, Asst. Chief Engineer, George Gorton Machine Co.

**13b.—(10:00) "New Arts in Jigless Boring" (22T21).** C. B. DeVlieg, President, DeVlieg Machine Co.



**A. D. Gunderson**  
Pantograph  
Milling



**C. B. DeVlieg**  
Jigless Boring



**C. W. Ostrander**  
Conversion  
Coatings



**St. John Bain**  
Thermoset Plastics

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American has established a new standard for service, reliability and quality for drill jig bushings. Their KING SIZE selection of A.S.A. and American Standard types of sizes, and the original 3-D simplified method of ordering from exclusive distributors everywhere, are OUT OF THIS WORLD!

Look for us at the A.S.T.E. Industrial Exposition and see the amazing Westinghouse Robot "ELEKTRO" in American's Booth.

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We invite you to come in  
and see the amazing Robot  
Show in our auditorium at  
the A.S.T.E. Industrial  
Exposition, Philadelphia,  
April 26-30, 1954.



**Tough  
centerless  
grinding  
problem**



**got you UP a TREE**

Here's the  
grinding wheel  
that will  
**ABSOLUTELY**

**solve it!**

Stop fretting and fuming! CINCINNATI Grinding Wheels can help you get off that limb in a hurry . . . because CINCINNATI Wheels go with centerless grinders like bark on a tree.

And with a CINCINNATI Milling-trained machinist on the job to help you get the most out of CINCINNATI Wheels, you can count on the right answer—**FAST!** Here's why:

**1** CINCINNATI Grinding Wheels were developed by Cincinnati Milling, which, in the field of centerless grinders, has done more research, had more experience and made more machines than any other organization in the world.

**2** Using CINCINNATI Wheels, we've solved hundreds of centerless grinding problems—such as production, roundness, taper, sizing, stock removal and finish.

**3** CINCINNATI Grinding Wheels represent 25 years of Cincinnati Milling research and practical experience based on an entirely new approach to grinding wheels—the development of the grinding wheel as a true cutting tool.

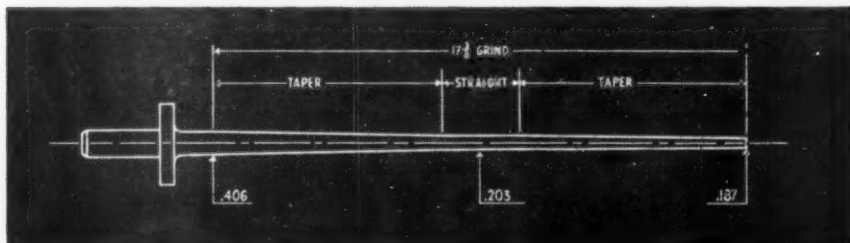
We are so confident—so *absolutely sure*—that CINCINNATI Grinding Wheels can help solve your tough centerless grinding problem that we make this *unconditional offer*: either you must be completely satisfied, or we will make no charge for the CINCINNATI Grinding Wheel used.

So contact us at once. We'll send one of our expert machinists—men who are Cincinnati Milling-trained and know grinding and grinding machines as well as grinding wheels. He can show you how to get the most out of CINCINNATI Wheels and help you solve that tough centerless grinding problem. There is no charge for his service. Write, wire or phone Sales Manager, Cincinnati Milling Products Division, The Cincinnati Milling Machine Co., Cincinnati 9, Ohio.

**How  
CINCINNATI GRINDING WHEELS  
Solved Tough Centerless  
Grinding Problem**

**CASE  
HISTORY  
No. 835**

The job	Metering pin for aircraft landing gear. Grind $17\frac{3}{8}$ " length, including two tapers and one straight section. Maximum diameter .406". Material SAE 4130. Stock removal .050" - .075".
The machine	Cincinnati No. 3 Centerless.
The problem	To grind this long, slender part, removing a large amount of stock, without distortion or warping and produce a high finish without chatter marks.
The solution	A Cincinnati 2460-M5-VN wheel provided the free cutting action necessary to keep the heat low. A Cincinnati Milling-trained machinist worked out the grinding technique "on the job." The large wheel used - $24" \times 17\frac{1}{2}" \times 12"$ - was manufactured in one piece.

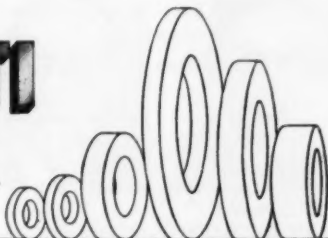


Here's a tough centerless grinding problem that had production men in a tall spin. The problem was how to grind this long, slender metering pin for aircraft landing gear, removing a large amount of stock, without distortion or warping and produce a high finish without chatter marks. For solution—see Case History.

**CINCINNATI**  
*Grinding Wheels*

THE CINCINNATI MILLING MACHINE CO.

Cincinnati 9, Ohio





### Room 300—Convention Center

#### 9:00 A.M. How to Prepare For and Secure Superior Metal Surfaces.

(Either by heating parts in special powder compounds . . . or by metal blasting for subsequent finishing. In the latter case, much versatility is achieved through use of the proper metallic or non-metallic abrasive.)

14a.—“Chromate Conversion Coatings” (22T22). C. W. Ostrander, Service Mgr., Allied Research Products, Inc.

14b.—“Metal Blasting and Finishing with Airless Blast Equipment” (22T23). F. W. Pedrotty, Director of Application Engineering, American Wheelabrator & Equipment Corp.

#### Arena Conference Room—Convention Center

#### 9:00 A.M.

15a.—“Postforming of Thermoset Plastics” (22T24). St. John Bain, Project Engineer, The Formica Co. (Low-pressure thermoelectric forming of laminate sheets frequently permits interchangeability of press tools for metals and certain plastics; can be inexpensively produced in low volume.)

15b.—(9:45) “Improved Design and Dimensional Control for Investment Castings” (22T25). R. L. Wood, President, Arwood Precision Casting Corporation. (Variables can be tricky; wax, plastic, ceramic mold material, and metal all have physical variables; same is true of the product design; but variation ranges can be established.)

#### Arena Conference Room—Convention Center

#### 1:30 P.M. New Concepts in Abrasive-Belt Grinding.

(How to sharpen tungsten carbide tool bits to a finish of 2 to 16 micro-inches RMS . . . and hold required accuracy of angles . . . for 1c to 3c per tool. You can now automatically generate concave forms, like turbo rotor blades, as well as extremely convex forms, by cam grinding.)

16a.—“Manufacturing Applications for Coated Abrasive Belts” (22T27). E. E. Oathout, Products Engineer, Behr-Manning Corp.

16b.—(2:15) “Hydraulically Cammed Profile Grinding” (22T28). A. F. Alt, Chief Engr., Planet Products Corp.



R. L. Wood  
Investment Casting



E. E. Oathout  
Belt Grinding



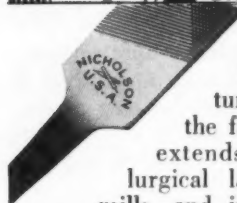
A. F. Alt  
Profile Grinding



R. F. Helmkamp  
Flame Cutting



## POP'S School of Filing



Nicholson file manufacture goes beyond the factory walls. It extends to the metallurgical laboratory, steel mills, and industrial plants requiring widely diversified types of files.

**Steels** are made to exacting specifications; are analyzed and tested; cut to working lengths (1).

**Forging**, with trip hammers, rollers and punches, shapes body, point and tang (2).

**Annealing**, under laboratory control, "conditions" the steel for uniform texture and for cutting.

**Smoothing** involves grinding to remove scale, drawfiling to assure uniform teeth and even filing surface (3).

**Cutting** is done with Nicholson-perfected machines considered the most

precise of their kind. First operation (4) produces the overcut (single); second (5) the upcut.

**Hardening**—a highly scientific process—assures teeth that are strong, hard, yet not brittle.

**Finishing** (6) includes cleaning, sand-blasting for extra sharpness; softening tang; oiling; final-testing to assure the most efficient, uniform, long-lasting files human skill can produce.

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**R. S. Jamison**  
Sub-Zero Chilling



**J. F. Aloisio**  
Ultrasonic Tools



**J. W. Rapp**  
Hobbing



**W. C. Tucker**  
Shear-Fracture

### **Room 300—Convention Center**

#### **1:30 P.M. Versatile Manufacturing Uses of Heat and Cold.**

(On the hot side, simple to complex metal shapes can be flame-cut with the electric eye. On the cold side, sub-zero chilling down to  $-150^{\circ}$  F. is now highly efficient for stabilizing metals, testing materials, shrink fitting, and treating perishable tools.)

**17a.—“Flame Cutting with Electronic and Magnetic Tracers” (22T29).** R. F. Helmkamp, Machine Cutting Specialist, Air Reduction Sales Company.

**17b.—(2:15) “Sub-Zero Chilling As An Industrial Process” (22T30).** R. S. Jamison, Assistant to the President, Sub-Zero Products Co.

### **Ballroom—Convention Center**

#### **3:00 P.M. Solutions for High-Speed and Difficult Machining Applications.**

(How ultrasonic machine tool developments may enable you to cut just about anything short of a diamond. How hobbing production has been increased . . . on SAE 9310 gears, for instance, it's upped from 100 to 275 sfm . . . and from 4 to 24 hobbled gears per hour . . . all with 50% increased tool life!)

**18a.—“Ultrasonic Tools for Hard-to-Machine Materials” (22T31).** J. P. Aloisio, Applications Engineer, Research Division, Raytheon Manufacturing Co.

**18b.—(4:00) “Hobbing at High Speeds and Heavy Metal Removal” (22T32).** J. W. Rapp, Supt. of Gear Manufacturing, Ohio Axle & Gear Division, Rockwell Spring & Axle Co.

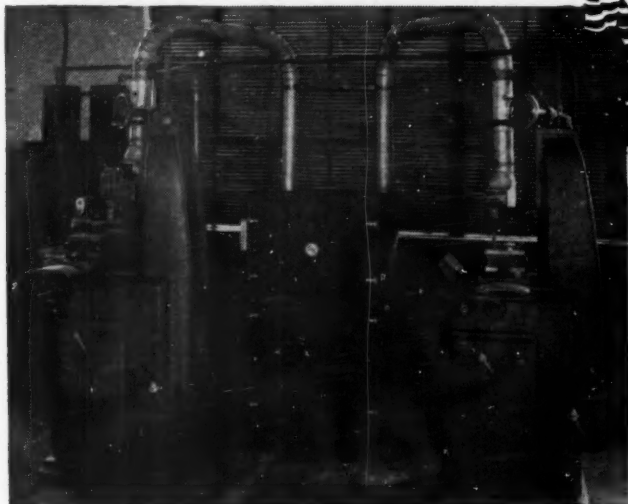
### **Burgundy Room—Bellevue-Stratford Hotel**

#### **8:00 P.M. Advantages in Parting and Extruding Cold Steel.**

(In the “nick-and-break” method of parting, you can get faster production of square-end blanks without crystalline distortion. With correct die design, cold extrusion can now give you finished shapes to closer tolerances with glass-smooth surfaces, eliminating subsequent machining except threading.)

**19a.—“Shear-Fracture Parting of Steel Billets” (22T33).** W. C. Tucker, Chief Engineer, Buffalo Forge Company, Machine Tool Division.

# It Pays to Modernize—



## Get Low Cost Dust Protection With **TORIT DUST COLLECTORS**

Everywhere, cost conscious plant managers are modernizing production set ups with Torit Dust Collectors for, in addition to their known efficiency, they produce savings all along the line. Among these are:

- Low investment and installation expense.
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- Can be wired to eliminate idle operation.
- Cleaned air recirculated—no heat losses.
- Self-contained they occupy little space.
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Join this modernization parade by increasing your plant's efficiency with Torit Dust Collectors. For complete information write:



### **TORIT DOOR FASTENERS**

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303 Walnut Street St. Paul 2, Minn.

See our Booth No. 2158 at the ASTE Exposition in Philadelphia, April 26-30th.

19b.—(9:00) "Successful Design of Steel Parts for Cold Extrusion" (22T34). D. I. Brown, Market Development Manager, Mullins Manufacturing Corp., Koldflo Division.

### **Ballroom—Bellevue Stratford Hotel**

#### **8:00 P.M. How to Lick Your Tough Milling Problems.**

(A group of internationally known specialists are setting up an agenda, with opportunity for all present to participate in answering the most vital questions on the subject.)

#### **20.—"Clinic on Improved Milling Practice" (Panel Discussion).**

W. A. Coe, Sales Engineer, Nelco Tool Co., Inc.

J. Daugherty, Consultant

Giddings & Lewis Machine Tool Company

Dr. Horace Frommelt, Staff Consultant

Detroit Milling Cutter Company

K. B. Kaiser, Asst. Chief Engineer

Ingersoll Milling Machine Co.

E. J. Krabacher, Research Engineer

Cincinnati Milling Machine Co.

J. R. Roubik, Asst. Research Engineer

Kearney & Trecker Corporation

T. G. Vickers, Master Mechanic

Clark Equipment Co., Transmission Division

### **THURSDAY, APRIL 29**

#### **Arena Conference Room—Convention Center**

#### **9:00 A.M. Cutting Fluids and Methods for Machining Difficult Materials.**

(How to pick the right cutting fluid with greater speed and certainty . . . what has been learned in the last year and one-half about cutting and forming titanium.)

#### **21a.—"An Orderly Use Classification of Cutting Fluids" (22T35).**

R. G. Moyer, Group Engineer, Pure Oil Co.

#### **21b.—(9:45) "What's Known Today About Machining Titanium" (22T36). G. T. Fraser, Sales Manager, Rem-Cru Titanium, Inc.**



**D. I. Brown**  
Cold Extrusion



**R. G. Moyer**  
Cutting Fluids

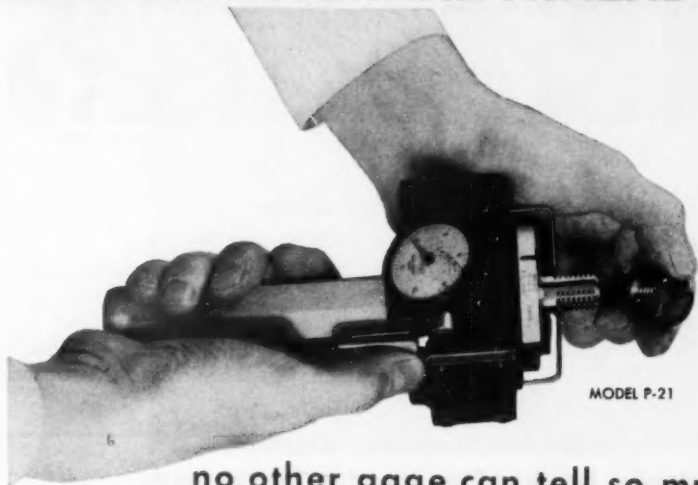


**G. T. Fraser**  
Machining Titanium



**W. A. Barnes**  
Cold Pressure  
Welding

# BRYANT INTERNAL THREAD GAGE

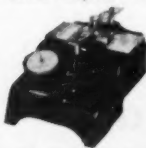


MODEL P-21

no other gage can tell so much —  
so fast — about internal threads

The P-21 Internal Thread Gage gives one accumulated reading of P. D., form and lead. Variation of these elements from basic size is shown on the dial indicator which reads in .0005". Interchangeable pairs of segments inspect all classes of internal threads from 5/16" to 5" dia. The segments work on the principle of an expanding master plug. This 16 oz. portable gage is designed for use in the shop or at the inspection bench. Descriptive literature on this gage and other Bryant gages is available on request. Send coupon today.

A bench type gage for external or internal threads is available, with or without squareness-of-face attachment.



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Plant Layout



John Diebold  
Automation



R. E. Stegler  
Optical Tooling



W. I. Wilt  
Gaging, Inspection

### **Ballroom—Convention Center**

#### **9:00 A.M. Parts Design for Cold Pressure Welding.**

(Proper parts design, tooling and pressures can insure full-strength molecular cold-weld bonding of similar or dissimilar ferrous and nonferrous metals; simple tools require no special skilled labor.)

22a.—“Preparation and Tooling for Cold Pressure Welding” (22T37). W. A. Barnes, Vice President, Engineering and Production Division, Utica Drop Forge & Tool Corp.

### **Ballroom—Convention Center**

#### **10:00 A.M. Extending Industrial Plant Layout to Take on Depth.**

(How three-dimensional color-coded layout planning can help you visualize even the most complex future plant.)

22b.—“Visualizing Plant Layout in Three Dimensions” (22T38). H. H. Dasey, President, Visual Plant Layouts, Inc.

### **Arena Conference Room—Convention Center**

#### **1:30 P.M. How Integrated Automation Can Revolutionize Production Patterns.**

(How to apply automation to conventional equipment. Examples: the automatic piston factory and the National Bureau of Standards' brand new “Project Tinkertoy.” Its implications must challenge everyone involved in equipment manufacture, production of fabricated products, and those who deal with personnel training and personnel relations.)

23.—“The Challenge of Automation” (22T39). John Diebold, Management Consultant.

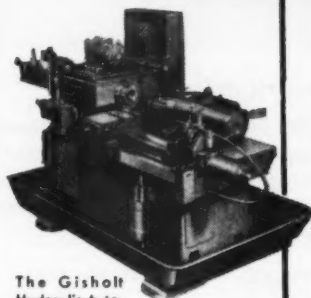
### **Ballroom—Convention Center**

#### **1:30 P.M. The Latest Fixture Assembly and Inspection Tools.**

(How to use optical tooling for fixtures. Also, new data on standardized gaging cartridges and other new concepts of gaging and inspection now available to industry.)

24a.—“Optical Tooling for Fixture Construction” (22T40). R. E. Stegler, Engineer, Manufacturing Research and Development Section, Republic Aviation Corporation.

**why this No. 12  
HYDRAULIC  
AUTOMATIC LATHE**



The Gisholt Hydraulic Automatic Lathe is a genuinely rugged 12" lathe, suited for light, fast jobs. Handles chucking, between centers, or fixture-held work.

**THE GISHOLT ROUND TABLE**  
*represents the collective experience of specialists in the machining, surface-finishing and balancing of round and partly round parts. Your problems are welcomed here.*



**maintains**

**GREATER ACCURACY**

Here, feed pressures are applied directly to tools without intermediate cams, arms or other linkage. Accuracy is further insured by feeding against dead stops. In all cuts there is a moment of dwell during which cuts are cleaned up.

Front carriage is mounted on and driven by the massive bar to which it is clamped. Wide lateral support of carriage assures rigid alignment without tremble or tremor.

Movement of the massive rear slide is by hydraulic piston in the base of the slide itself.

Both carriages are directly supported by the massive integrally cast cabinet type bed, and all bearing surfaces, ways and gibs are hardened and ground steel to assure permanent accuracy.

**GISHOLT** COMPANY

Madison 10, Wisconsin

TURRET LATHES • AUTOMATIC LATHES • SUPERFINISHERS • BALANCERS • SPECIAL MACHINES

24b.—(2:15) "New Concepts of Gaging and Inspection" (22T41).  
W. I. Wilt, Asst. Manager, Sales Division, and Harry Kiefaber, Gage  
Application Engineer, Sheffield Corporation.

### **Ballroom—Convention Center**

**3:00 P.M. How to Improve Your Inspection Ways and Means.**

(Equipment, operation, and supervision are all represented by a panel of authorities, whether your problem lies in the control of quality, manual or automatic gaging, or non-destructive testing.)

**25.—"Inspection Ways and Means" (Panel Discussion)**

P. G. Fishback, Manufacturing Engineer,  
Accessories Div., Thompson Products, Inc.

J. Manuele, Director of Headquarters, Quality  
Control, Westinghouse Electric Corporation

F. Meyer, Jr., Chief Engineer

Taft-Peirce Manufacturing Company

F. B. Murphy, Field Manager

Johnson Gage Company

S. D. Nicolas, Chief Inspector

Merz Engineering Company

E. C. Polidor, Chief Engineer

Optical Gaging Products, Inc.

G. H. Stimson, Gage Sales Manager

Greenfield Tap & Die Corporation

### **Ballroom—Bellevue Stratford Hotel**

**7:00 P.M. 22nd Annual Banquet of the American Society of Tool Engineers.**

**SPEAKER:** Dr. Henry T. Heald, Chancellor, New York University

**NOTE:** For Banquet Reservations at \$7.50 per plate, send your check directly to the American Society of Tool Engineers, Detroit.

## **FRIDAY, APRIL 30**

### **Room 300—Convention Center**

**9:00 A.M. What the Tool Engineer Needs to Know About Powder Metallurgy.**

(Why and when powder metallurgy may be your best answer to better product design and tooling.)

**26a.—"Product Design for Powdered Metal Parts" (22T42).** G. Stern, Vice President and Technical Director, American Electro Metal Corporation.

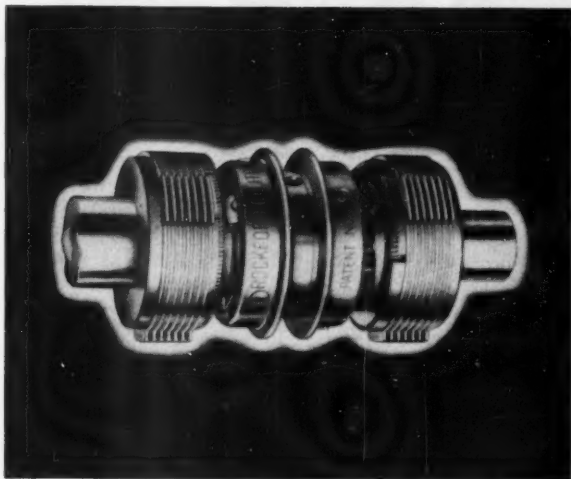
**26b.—(10:00) "Tooling for Powdered Metal Parts" (22T43).** J. F. Kuzmick, Consultant, Welded Carbide Tool Co.

### **Arena Conference Room—Convention Center**

**9:00 A.M. How Plastics Are Moving Into Full-Scale Production.**

(For jigs, plastics provide structures which are exceedingly sturdy, strong and dimensionally stable; lighter than aluminum; easier to fabricate than steel. For dies, it's quick and easy to make dupli-

# ASSURING SMOOTH EASY OPERATION



**ROCKFORD CLUTCHES** are carefully adjusted and accurately balanced to prevent drag or centrifugal force from affecting their smooth running operation. An electronic gauge checks the balance of each **ROCKFORD CLUTCH**, within extremely close limits, before it passes final inspection.

#### SEND FOR THIS HANDY POWER TRANSMISSION BULLETIN

It shows typical installations of **ROCKFORD CLUTCHES** and **POWER TAKE-OFFS**. Contains diagrams of unique applications. Furnishes capacity tables, dimensions and complete specifications.

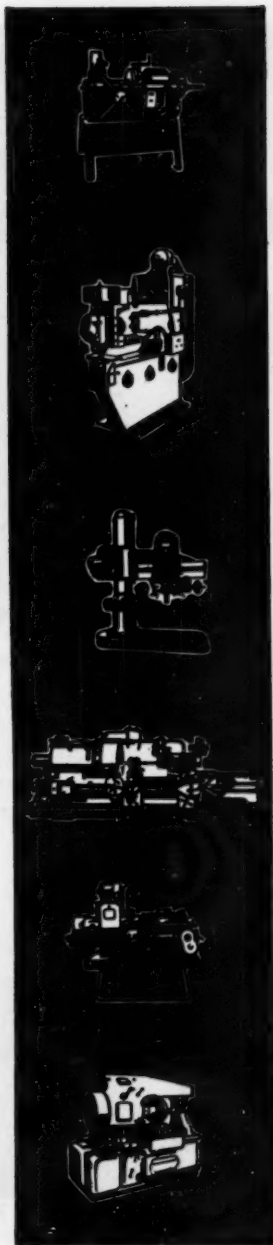


Every development engineer will find help in this handy bulletin, when planning new or improved products.

**ROCKFORD CLUTCH DIVISION**  
**Borg-Warner Corporation**

1309 Eighteenth Avenue, Rockford, Illinois

# ROCKFORD CLUTCHES





**H. T. Heald**  
Banquet Speaker



**G. Stern**  
Powdered Metal



**J. F. Kuzmick**  
Powdered Metals



**B. Sokol**  
Plastic Fixtures

cates which can each produce thousands of pieces. Results of severe road tests of plastic auto bodies. Are mass-production techniques just around the corner?)

**27a.—“Plastic Fixtures Have Wide Use” (22T44).** B. Sokol, Plastics Engineer, Republic Aviation Corp.

**27b. (9:45) “Plastic Dies Move Into Regular Production Service” (22T45).** G. C. Adams, Staff Engineer, Rezolin, Inc.

**27c.—(10:30) “Plastic Auto Body Developments” (22T46).** W. A. Hermonat, Technical Representative, Naugatuck Chemical Division, U. S. Rubber Co.

### **Room 300—Convention Center**

#### **1:30 P.M. Newest Approaches to Your Welding Problems.**

(How to weld and braze high-temperature materials such as stainless steel 347, cobalt alloy 25, and titanium. Where to use stud welding instead of drilling and/or tapping a plate when a stud must be joined to it.)

**28a.—“Welding and Brazing of High-Temperature Materials” (22T47).** F. H. Stevenson, Production Engineer, Aerojet-General Corporation.

**28b.—(2:15) “Ferrous and Nonferrous Stud Welding” (22T48).** R. C. Singleton, Industrial Sales Manager, Nelson Stud Welding Division, Morton-Gregory Corp.



**G. C. Adams**  
Plastic Dies



**W. A. Hermonat**  
Plastic Auto Bodies



**F. H. Stevenson**  
Welding, Brazing

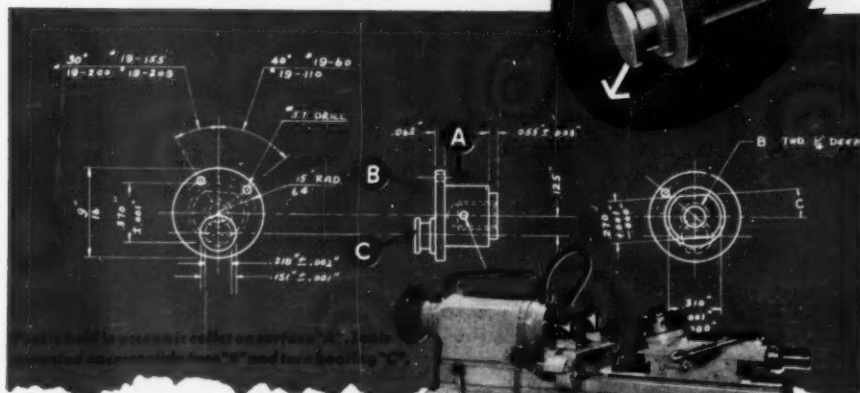


**R. C. Singleton**  
Stud Welding

## INSTANT START-STOP

boosts Penn Fishing Tackle parts to 250 per hour!

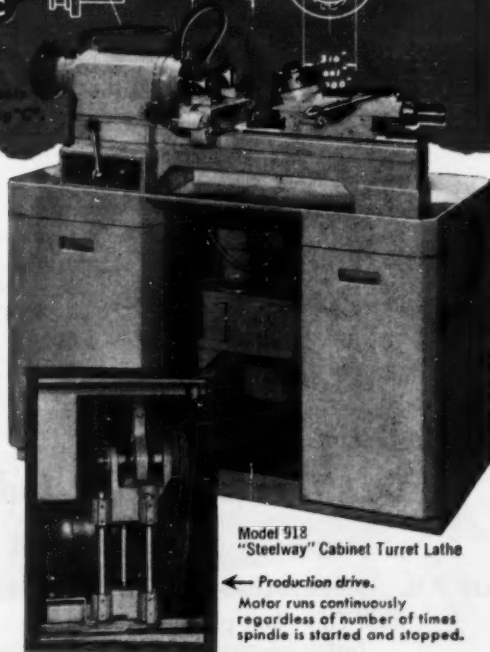
250 of these parts per hour led Penn Fishing Tackle Mfg. Co. to reorder additional Rivett 918 "Steelways."



Penn Fishing Tackle Mfg. Co. went fishing to catch ideas for stepping up production of eccentric parts. The Rivett 918 "Steelway" Cabinet Turret Lathe with its production drive proved ideal for their needs.

This production drive features "split-second" starting and stopping of the spindle by movement of the lever chuck closer handle. With one forward pull, the operator closes collet on work, releases brake and engages spindle drive. When lever is pushed back, spindle drive is disengaged, brake mechanism is applied and work is released.

A 918 "Steelway" can boost your production, too! Why not go fishing and see what savings can be caught!



Model 918 "Steelway" Cabinet Turret Lathe

← Production drive. Motor runs continuously regardless of number of times spindle is started and stopped.

# RIVETT

LATHE & GRINDER, Inc.

Dept. MTR4 Brighton 35, Boston, Mass.



## **Arena Conference Room—Convention Center**

### **1:30 P.M. Latest Techniques in the Forming of Sheet Metals.**

(How industry can benefit from government research which has developed complete standardized tooling for stretch-wrap forming. You can now deliberately pre-deform metal shapes to conquer the most difficult types of draw.)

29a.—“Principles of Stretch Wrap Forming” (22T49). K. Drone, Chief Engineer, Hufford Machine Works, Inc.

29b.—(2:15) “Planned Pre-Deforming of Shapes for Better Drawing” (22T50). C. M. Geddis, Asst. Master Mechanic, Buick Motor Division, General Motors Corp.

## **Ballroom—Convention Center**

### **3:00 P.M. How Others Have Improved Their Workholding Ways and Means.**

(One of the oldest, most basic responsibilities of the Tool Engineer is still as challenging as the diversity of the manufactured products themselves. Ask what you want of the Panel concerning fixtures, jigs, chucks, collets and the like—whether mechanically, pneumatically, hydraulically, magnetically or otherwise actuated.)

30.—“Workholding Ways and Means” (Panel Discussion).

J. L. Balciunas Chief Engineer  
Skinner Chuck Co.

L. R. Burger, Sales Manager  
Logansport Machine Co., Inc.

K. Cole, Chief Designer

N. A. Woodworth Company

J. I. Karash, Production Manager  
Reliance Electric & Engineering Co.

P. Lindhuber, Chief Tool Designer  
Spicer Manufacturing Division, Dana Corp.

R. W. Newton, Tool Analyzer  
International Business Machines Corp.

J. E. Rotchford, Vice President  
Lodding Inc.



**K. Drone**  
Stretch Wrap  
Forming

## **PLANT VISITS . . . Ladies' Activities**

**MONDAY, APRIL 26**

### **1:30 P.M. Baldwin-Lima-Hamilton Corp., Eddystone, Pa.**

(This plant produces diesel-electric, electric and steam locomotives, hydraulic presses, hydraulic turbines, testing equipment, dump cars, diesel engines, bending rolls, plate planers, ship propellers and other marine equipment, alloyed iron and non-ferrous casting and

EVERY

BRAND

is checked by air gauge  
to insure precise  
accuracy of  
taper... .0003  
tolerance.



precise  
manufacturing  
produces...

Quality

Supreme Chucks

BRAND

Interchangeable with other makes... entire body  
hardened inside and out for greater durability... jaws  
nickel chrome moly alloy steel... one piece geared  
nut construction. The economical chuck to use.

SUPREME PRODUCTS, INC., 2222 S. Calumet, Chicago 16, Ill.

*the chuck that lives up to it's name...* **Supreme**



much special purpose machinery. Visitors will see locomotive diesel engines being made.)

## **TUESDAY, APRIL 27**

**8:30 A.M. Fairless Works, U. S. Steel Co., Morrisville, Pa.**

(This brand new plant is the steel operating man's dream . . . a mill that not only incorporates the most modern steel mill equipment available, but which is arranged to provide a more efficient flow of materials than is possible in most older plants. Length of the visit will be 4 to 5 hours . . . will include everything but the Blast Furnaces. Men must wear head covering on this visit.)

**8:30 A.M. Radio Corp. of America, RCA Victor Division, Camden, N. J.**

(Producers of RCA Victor Radio receivers, television receivers, electron tubes, needles, etc. Visitors will be shown how radio and television sets are assembled and how individual parts are made.)

**1:30 P.M. Link-Belt Company, Colmar, Pa.**

(This new plant of modern design combines the simplicity of straight-line production with utmost flexibility. Among the products manufactured are conveyors of all types, drives, chains, bearings, speeder shovels, cranes, draglines, and drying equipment.)

## **WEDNESDAY, APRIL 28**

**8:30 A.M. Yale & Towne Manufacturing Co., Philadelphia, Pa.**

(Products manufactured include hand lift trucks, motorized hand-lift trucks, gas and electric industrial trucks, hand chain hoists, and electric hoists. Visitors will be shown how each job is tooled up, from the tool crib to the respective machines, and how to operate powered lift trucks most effectively and safely.)

**1:30 P.M. The Budd Company, Red Lion Division, Philadelphia, Pa.**

(This company is well known as a manufacturer of railway passenger cars, automotive bodies, sheet metal and stainless steel specialties and stampings. Visitors will see passenger, dining, club and sleeper cars being produced from start to finish . . . including the famous Vista Dome cars for the Santa Fe Railroad.)

## **THURSDAY, APRIL 29**

**8:30 A.M. Fairless Works, U. S. Steel Co., Morrisville, Pa.**

**8:30 A.M. Yale & Towne Manufacturing Company, Philadelphia, Pa.**

**1:30 P.M. Link-Belt Company, Colmar, Pa.**

**1:30 P.M. Philco Corporation (Plant No. 10), Philadelphia, Pa.**

(This new plan constitutes the heart of Philco electronic production, which includes both radio and television receivers and special

**Up to 50%  
more cuts  
per blade**

## **MILLERS FALLS "BLU-MOL"®**

Here is the greatest high-speed power blade ever developed for general all-purpose hacksawing. *In actual tests, even on the toughest sawing jobs, "Blu-Mol" delivers up to 50% more cuts per blade.*

That's because "Blu-Mol" blades are machined from a specially-selected high-speed steel — and precision heat-treated by an exclusive Millers Falls process. The result is a blade of extreme tooth hardness and toughness, with a stubborn, long-lasting resistance to abrasion *on any machinable material.*

Write for details on "Blu-Mol" power and hand Hack Saw Blades, and "Blu-Mol" high-speed, welded-edge Hole Saws. All bring you the same unique qualities that are setting records for performance and economy in thousands of plants.

**The world's broadest,  
most highly-developed  
line of metalcutting saws**

**MILLERS FALLS COMPANY  
Dept. MT-1, Greenfield, Mass.**



*The Mark of Superiority*

electronic equipment for Government and industry. For the past five years, Philco has placed special emphasis on its transistor research program. In addition to its electronics program, Philco also produces radio-phonographs, refrigerators, freezers, air conditioners, electric ranges and dry batteries.)

### **FRIDAY, APRIL 30**

**8:30 A.M.** **Radio Corp. of America, RCA Victor Division, Camden, N. J.**

**8:30 A.M.** **Baldwin-Lima-Hamilton Corp., Eddystone, Pa.**  
(No Plant Visits Scheduled for Friday Afternoon.)

### **LADIES' ACTIVITIES**

Special activities for the wives of ASTE members who are attending the 1954 Industrial Exposition & Conference with their husbands will be provided during the Exposition.

**The Schedule of Ladies' Activities is as follows:**

### **TUESDAY, APRIL 27**

**10:00 A.M.**

Luncheon and tour of the famous Longwood Gardens (du Pont Estate), Wilmington, Delaware. Bus fare and luncheon to be paid by each individual attending.

### **WEDNESDAY, APRIL 28**

**11:30 A.M.**

TV Tour of Stations WFIL and WCAU. Includes two women-participation shows. Luncheon will be at the Parkside Inn. Bus fare and luncheon will be \$1.75 per person, inclusive, **payable at least two weeks in advance** of the 1954 ASTE Exposition.

**IMPORTANT:** This tour (and luncheon) is definitely limited to 80 Women!

### **THURSDAY, APRIL 29**

**10:00 A.M.**

Tour of Valley Forge. Valley Forge was established by the State of Pennsylvania at a cost of over \$1,000,000. Geo. Washington's headquarters are still standing.

**7:00 P.M.**

Annual Banquet. Bellevue-Stratford Ballroom.

**NOTE:** If any ladies would prefer to go on a sightseeing tour rather than to participate in any of the above activities, an agent of the Gray Lines, which handles such tours, will be stationed at each large hotel to accommodate them.

# POSITIVE DRIVE... QUICK CHANGE

## with Continental Counterbores...

You can reduce your tool cost, improve accuracy, and increase production with the Continental complete line of standard drive interchangeable cutting tools. Cutters have a balanced, indestructible drive—originated by Continental—that will not stick, will not break, and is hand detachable after toughest cuts.

Order through your local Ex-Cell-O representative or write to Continental in Detroit.

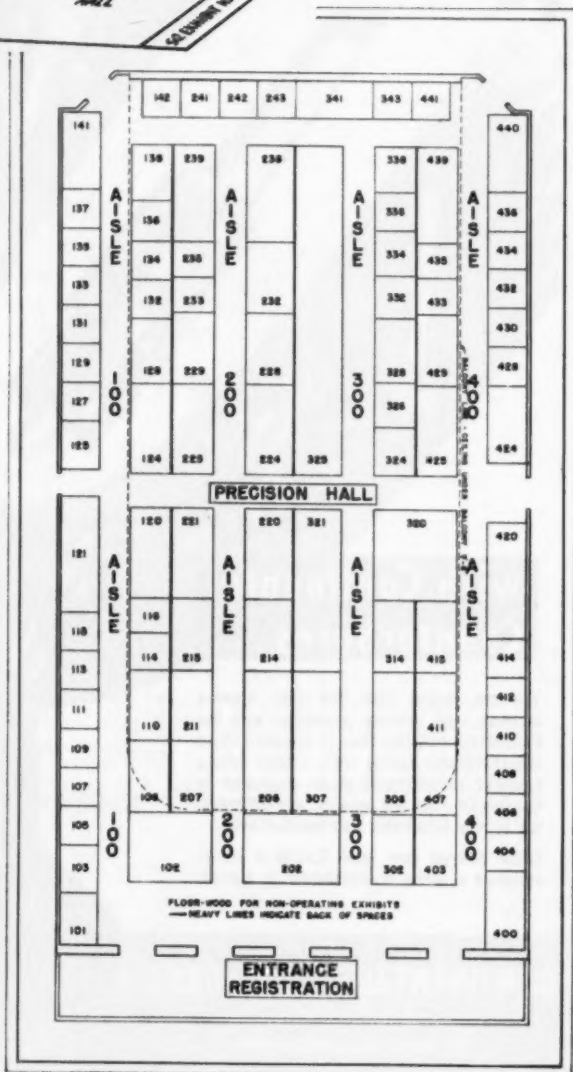
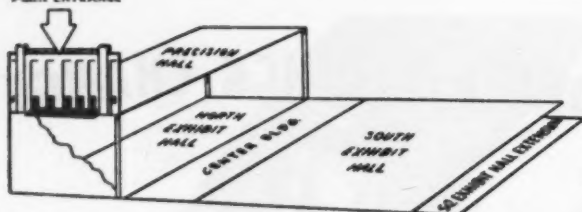
### CONTINENTAL TOOL WORKS

Division of Ex-Cell-O Corporation  
DETROIT 32, MICHIGAN

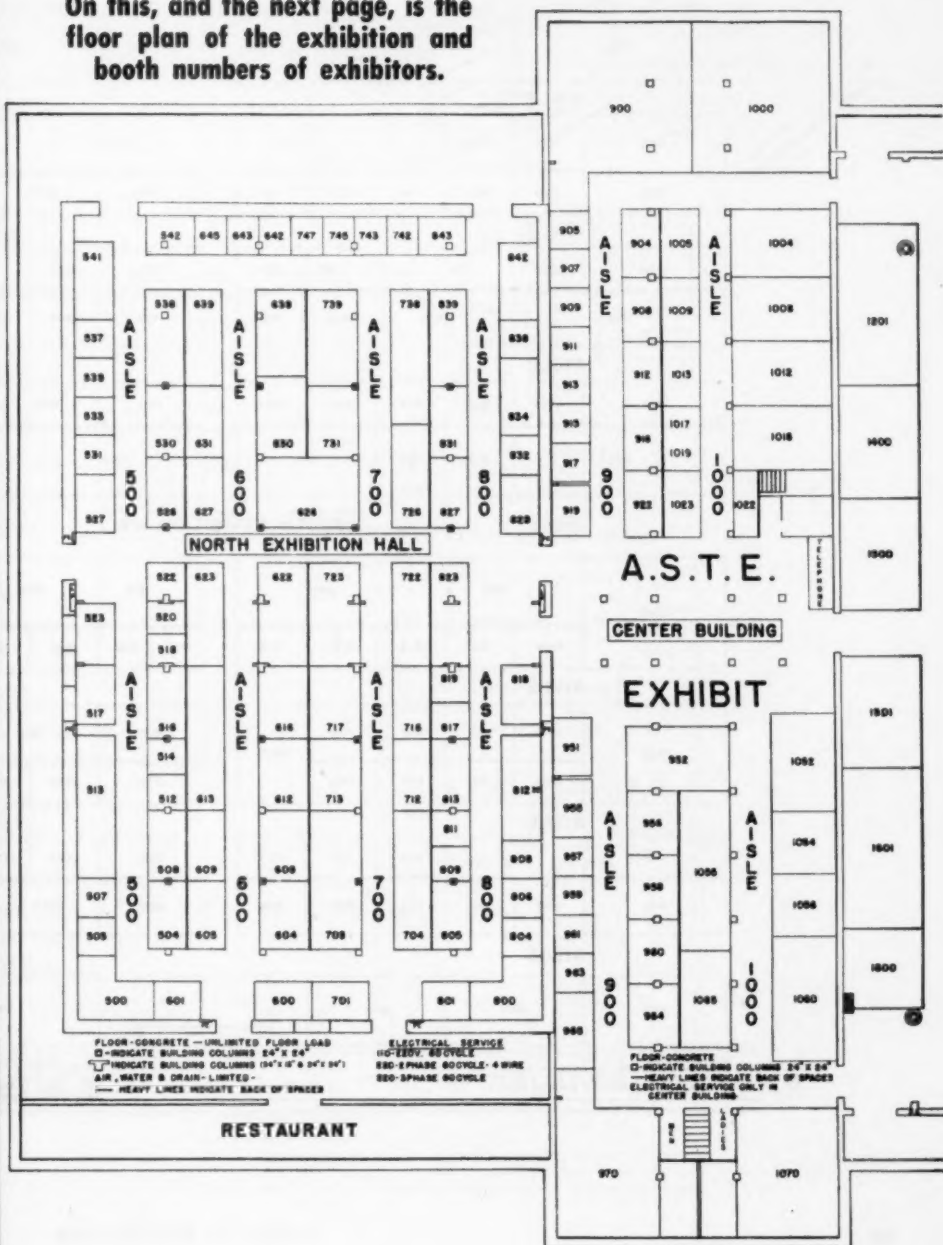


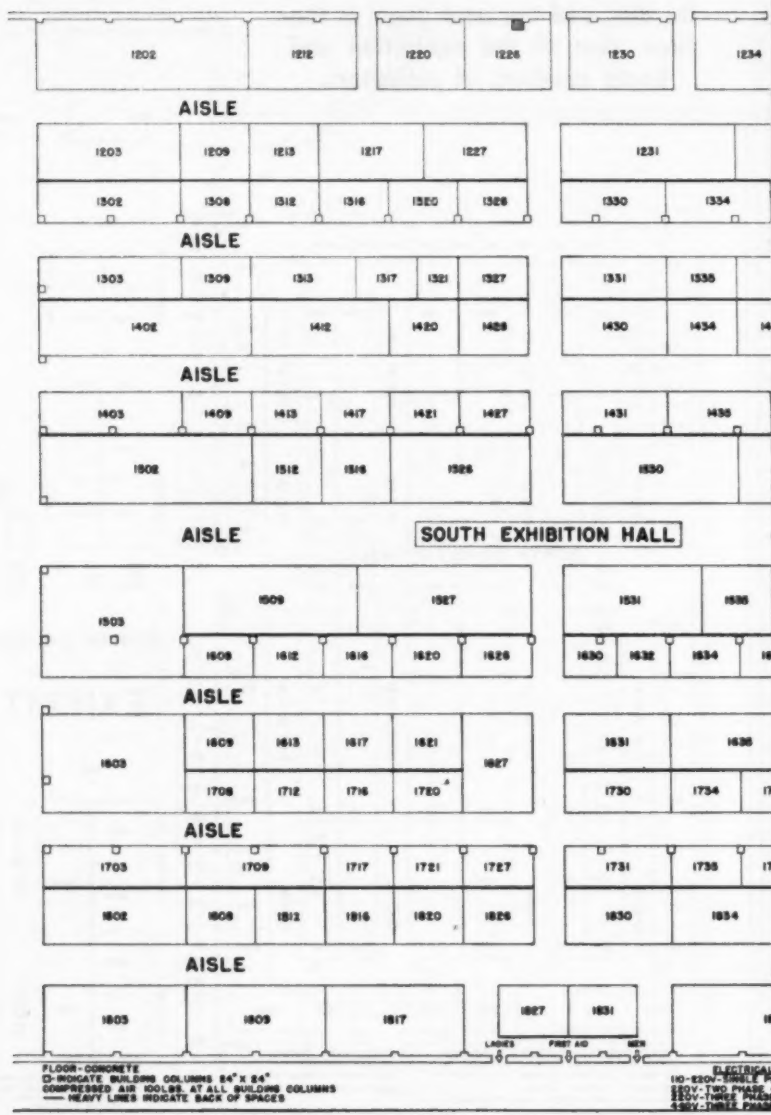


MAIN ENTRANCE



On this, and the next page, is the floor plan of the exhibition and booth numbers of exhibitors.









Operations like this are always interesting to concerns who need dependable, cost-cutting lathes for their own products or to build equipment for others.

For example, at Bell Aircraft, Buffalo, New York, this SIDNEY LATHE is making a sleeve for a tool grinding machine which will be used for grinding parts for their rocket engines. Naturally they need and get allowable tolerances of .001 ( $\pm$ ) without any trouble.

Bell Aircraft also uses SIDNEY LATHES to machine gear cutters which are used in connection with their guided missile program.

THERE'S NO END TO WHERE AND HOW YOU CAN USE SIDNEY LATHES

it's a  
**SIDNEY**  
**HEAVY-DUTY LATHE**

MAKING A SLEEVE FOR A  
TOOL GRINDING MACHINE...

AT

**BELL AIRCRAFT**

CORPORATION

IN

BUFFALO, NEW YORK

WRITE  
FOR  
BULLETINS

**THE SIDNEY MACHINE TOOL CO. • SIDNEY, OHIO**

*Builders of Precision Machinery since 1904*

## Exhibitors, Personnel, Products and Booth Numbers

### ACCURATE BUSHING COMPANY

Garwood, N. J.

Booth No. 141

### ACE DRILL BUSHING CO., INC.

Los Angeles, Calif.

Booth No. 917

**Personnel:** George T. Smith; Melvin Oft.

**New Products:** The Ace Master lock-screw locator jig performs the same functions as several separate ones.

**Other Products:** Ace jig and fixture drill bushings, drill bushings for castable materials, drill bushings for pressing into soft materials, lock screws, lock clamps.

### ACE DRILL CORP.

Adrian, Mich.

Booth No. 125

**Personnel:** Burton R. Leathley, Frank R. Smith; Robert Bonner; Herbert Robinson; Daniel Chinchik; Charles Schenk; Robert Brennan.

**New Products:** Knock out pins. Long length, small diameter "Long-Life" pins do not require straightening or special heat treating operations as they are manufactured by a unique continuous furnace process.

**Other Products:** Twist drills, reamers, carbide tools, drill blanks, knock out pins.

### ACME STEEL COMPANY

Acme Steel Products Div.

2840 Archer Ave., Chicago 8, Illinois

Booth No. 904

**Personnel:** J. H. Prout, V. J. Fiore, W. C. Quednau, E. P. Crim, G. W. McDonald, N. J. Lynch.

**Products:** Wire stitching machines, for stitching metal to metal or to non-metallic materials, such as wood, rubber, asbestos, fibre, etc. Box stitchers will be demonstrated, also.

### AIR CONVERSION RESEARCH CORP.

Chicago, Ill.

Booth No. 1251

### ALLEGHENY LUDLUM STEEL CORP.

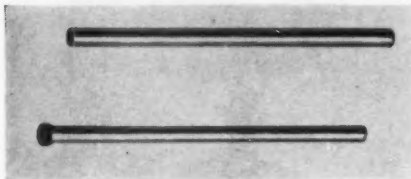
Brackenridge, Pa.

Booth No. 224

### GEORGE H. ALEXANDER MCHY., LTD.

Birmingham, England

Booth No. 905



**Knock out pins**  
Ace Drill Corp.

### ALLEN TOOL CO.

Div. of Allen Industries, Inc.

240 North Fountain Ave., Springfield, O.

Booth No. 1005

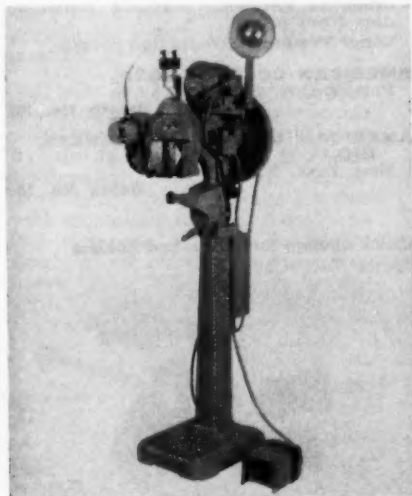
**Personnel:** George H. Allen, Jack Hart, Edward A. Jonasch, Richard L. Clauer, W. E. Clowminzer, Orville Q. Speirs, Wm. C. Craig, W. H. Kirkham.

**New Products:** Reinforced plastic tooling.

**Other Products:** Tools made from reinforced plastics.



**Tooling from reinforced plastic**  
Allen Tool Co.



**Acme-Morrison metal stitcher**  
Acme Steel Co.



**ALLIED PRODUCTS CORP.**  
(Richard Bros. Punch Div.)  
Detroit, Mich.

**Booth No. 1227**

**THE ALLISON CO.**  
Bridgeport, Conn.

**Booth No. 1331**

**Personnel:** C. D. Cummings, S.M.; H. R. Powell, Asst. S.M.; G. J. Casserly; Bernard Pane, Jr.; E. C. Scanlon, R. H. Wilhelm, R. J. Bowllan, field Engrs.

**New Products:** Demonstrating Allison cut-off wheels in 16" and 20" size on Campbell Co. Machine No. 223 and No. 406.

**ALORIS TOOL CO., INC.**  
Flushing, N.Y.

**Booth No. 1916**

**Personnel:** Frank Sirola, James Ford, Stuart S. Collins.

**New Products:** Aloris quick change tool post and holders for engine and turret lathes. Tool post is a tested and proven tool that fits all engine and turret lathes. It is sturdily constructed and easy to operate. All working surfaces are hardened and precision ground.

**ALPHA TOOL WORKS**  
Detroit 28, Mich.

**Booth No. 1755**

**Personnel:** Alex Borzym, Pres.; Harold L. Kegler, Gen. Mgr.; R. Malkowski, Tech.; R. Wharton, Tech.

**New Products:** Tryout presses. Permit barbering, shearing, fitting and finishing both die members, and tryouts as often as necessary without removing dies from press.

**Other Products:** Production presses.

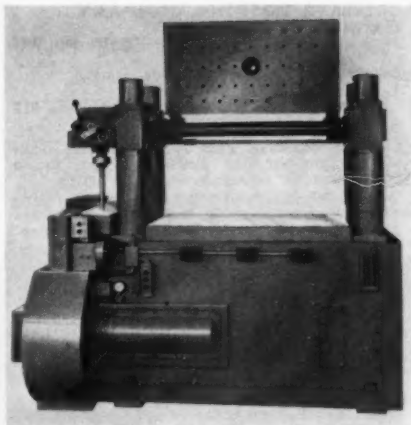
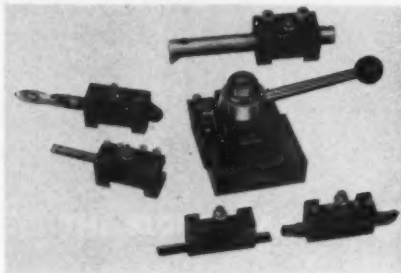
**AMERICAN COLDSET CORP.**  
Paterson, N. J.

**Booth No. 105**

**AMERICAN CYSTOSCOPE MAKERS, INC.**  
New York, N. Y.

**Booth No. 106**

**Quick change tool posts and holders**  
Aloris Tool Co.



**Tryout press**  
Alpha Tool Wks.

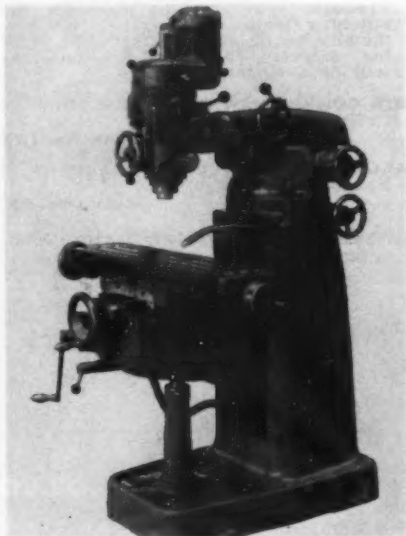
**AMERICAN DRILL BUSHING CO.**  
Los Angeles, Calif.

**Booth No. 1234**

**AMERICAN MACHINIST**  
New York, N.Y.

**Booth No. 1420**

**New American milling machine**  
American Milling Machine Co.



# Special U-clamps made on a **DAKE** press



## with this low-cost fixture

A few pieces of scrap steel, cut to size and welded, became the die with which this machinist forms U-clamps on his Dake Hydraulic Press.

He is Gerald Denicola, who operates the Marmora Machine Co. of Chicago. One of his customers orders these clamps 100 at a time, three or four times a year.

When he learned that there would be repeat orders for them, he rigged up the fixture shown above at a cost of less than \$15. It paid for itself on the first run, and

since then has paid "dividends" regularly every three or four months.

If you are hammering out jobs the *hard* way, imagine how much work and money you could save by doing them with a Dake Hydraulic Press. Hand, air, or electrically operated Dake Presses with capacities ranging from 25 to 300 tons are suitable for thousands of production and maintenance jobs. They are fully described in illustrated Catalog 129—write for a copy, today.

**Dake Engine Company, 608 Seventh St., Grand Haven, Mich.**

**DAKE  
PRESSES**



Arbor Presses



Hand-Operated Hydraulic



Power-Operated Hydraulic



Guided Platen



Gap Type Presses



Movable Frame

**AMERICAN MILLING MACHINE, INC.**  
Los Angeles, Calif.

**Booth No. 1908**

**Personnel:** T. Taylor, David Fichman, T. Worley, E. Parrish.

**New Products:** American vertical milling machine. Mill has a heavy column, 1 hp motor, 5½" quill travel, speeds to 4100 r.p.m., 10"x40" table, 10" cross travel, 24" longitudinal travel (which can be increased), 18" vertical travel and 10" overarm travel.

**AMERICAN PULLMAX COMPANY, INC.**  
2455 N. Sheffield Ave., Chicago 14, Ill.

**Booth No. 1703**

**Personnel:** E. G. Kihlstrom, Sales Mgr.; L. W. Behrendt, Asst. Sales Mgr.; O. T. Hammer, Eastern Repr.; J. J. Thomas, Cleveland Repr.; E. F. Land, Local Repr.

**New Products:** Model P-3 Pullmax sheet steel and plate cutting machine.  
**Other Products:** Pullmax sheet steel and plate cutting machines, Model Major with power feed; Model D3, P5, P3, and trimmer. These will be demonstrating the cutting of all types of metal. New power feed attachment installed on the largest Pullmax Model Major can cut ¼" mild steel circles at a rate of 25 feet per minute.

**AMERICAN SIP CORPORATION**  
New York, N. Y.

**Booth No. 1546**

**AMERICAN TOOLING CORPORATION**  
New York, N. Y.

**Booth No. 909**

**Personnel:** O. C. Kanitz; Max Brocner; H. L. Kanitz; Robert Brown; Sidney Shapira.

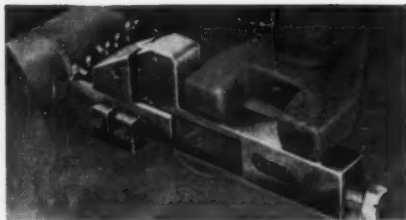
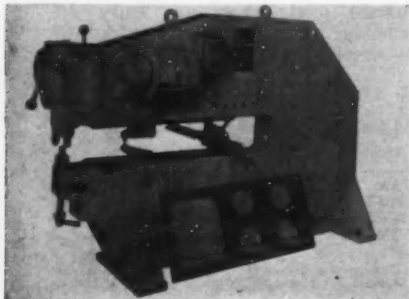
**New Products:** Shock absorbing tools; cutting tools; hydraulic vises. New tool holder absorbs vibrations and shocks occurring when turning rough surfaces. The tool "Recoiler" prevents breakage of bits, prolongs cutting tool life and permits high speeds, it is said.

**AMERICAN WHEELABRATOR & EQUIPMENT CORP.**  
Mishawaka, Ind.

**Booth No. 1209**

**Personnel:** A. E. Lenhard, E. A. Rich,

**Sheet steel, plate cutter**  
American Pullmax Co., Inc.



**New tool holder absorbs vibration**  
American Tooling Corp.

R. L. Orth, J. E. Skene, G. O. Pfaff, K. E. Blessing, F. J. Pichard, David Logan, C. L. Benham, Geo. F. Burditt, G. C. Tolton, C. F. Ludwig, W. J. Sutherland, R. A. Campbell, A. J. Smith, A. H. Freeman, F. W. Pedrotty, R. E. Schalliol, George Lieser, Fred E. Uhl, and T. L. Fawcett.

**New Products:** Model 30 Liquamatte wet blasting machine. Versatility for low cost precision finishing. Features: Self-contained packaging unit; push button controlled; no platform needed; sealed lighting, gauntlet construction, etc.  
**Other Products:** Wheelabrator Tumbblast airless blasting machine.

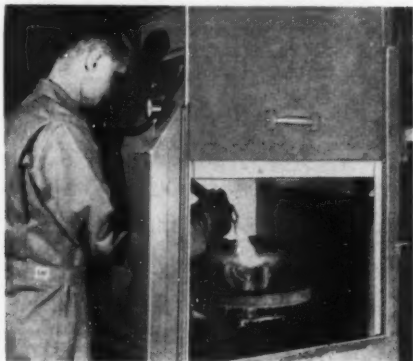
**B. C. AMES CO.**  
Waltham, Mass.

**Booth No. 338**

**New Products:** Small hole gage, a two-point contact gage that makes easy the quick, accurate inspection of small holes for size, taper and roundness. It is extremely sensitive, yet it automatically centers itself.

**Other Products:** Micrometer dial indicators and micrometer dial gages; calipers, and other inspection tools.

**Wet blasting machine Model 30**  
American Wheelabrator & Eqpt. Co.



**AMPCO METAL INC.**  
Milwaukee 46, Wis.

**Booth No. 1730**

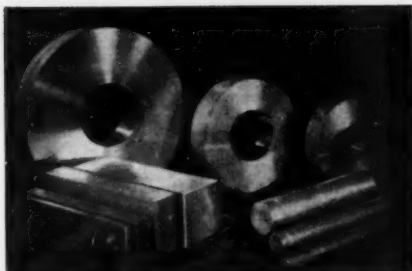
**Personnel:** O. B. Frohman, Consulting Eng.; E. E. Whitson, Adv. Mgr.; S. C. Lawson, Gen. Sales Mgr.; J. W. Nebel, Dist. Mgr.; C. W. Dralle, Field Eng.; N. S. Cobleigh, Dist. Mgr.

**New Products:** Ampco metal Grade 24, stock die blanks and examples of products formed over these dies.

**Other Products:** Arc welding products, resistance welding products.

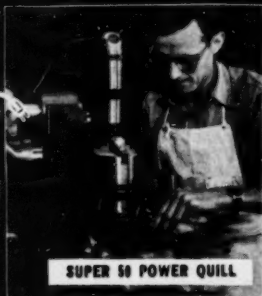
**Stock die blanks, Grade 24**

Ampco Metal Inc.



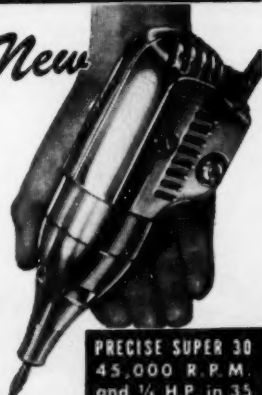
# Precise LOWEST COST PRECISION

## FOR TOOL ROOM AND PRODUCTION



UP TO 45,000 R.P.M. AND  $\frac{1}{4}$  H.P. ON AC/DC. Only PRECISE has the speed, power and precision needed to turn Tungsten Carbide Mills as well as all other rotary tools with shank diameters to  $\frac{1}{4}$ ". Grind, mill, finish, polish any material from wood to the hardest alloy steel. MODELS SUPER 30 and SUPER 40 are for hand applications or machine set-ups; PRECISE SUPER 50 is for heavy duty in machine set-ups. Precision quills and chucks; lifetime-lubricated, micro-precision bearings; machined metal housings. Mounts and accessories for each model extend versatility on standard machine tools.

*New*



**PRECISE SUPER 30**  
45,000 R.P.M.  
and  $\frac{1}{4}$  H.P. in 35  
oz. Draw collet.



*Write* FOR CATALOG

**PRECISE PRODUCTS CORP. 1331 Clark St., Racine, Wis.**

**APPLIED HYDRAULICS MAGAZINE**  
Cleveland, Ohio

Booth No. 2165

**F. E. ANDERSON OIL CO., INC.**  
Portland, Conn.

Booth No. 1516

**New Products:** Lusol K-5, grinding solution for ferrous metals; spray defoamer for cutting fluids; TR-10 water conditioner; PV-71, PV-73 synthetic paints; Winsor CV-11 Clear-Kote, transparent air dry synthetic coating; line of synthetic lubricants.

**ANDERSON & SONS INC.**  
Westfield, Mass.

Booth No. 609

**Personnel:** Roland E. Anderson, Pres. & Sales Mgr.; A. M. Anderson, Sales; Francis E. Webster, Design Eng.

**New Products:** Printed circuits; adhesive backed metal nameplate, a secure and decorative means of identifying a product where pins or rivets are impractical for attaching; tamper-proof photo identification badge.

**Other Products:** Decorated metal products which include a variety of defense items, instrument dials, panels, nameplates and novelty items.

**R. B. ANNIS CO.**  
Indianapolis 2, Ind.

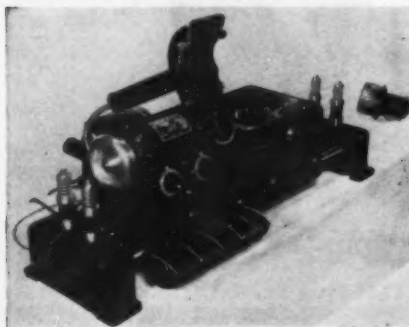
Booth No. 742

**Personnel:** R. B. Annis, Owner; M. B. Annis; Mrs. R. B. Annis.

**New Products:** Under-drive Moto-Blower balancer Model M2-S-44/U, for balancing complete motor and blower wheel assemblies such as in automotive air conditioning units, etc.

**Other Products:** Standard high precision dynamic balancing machine for small rotors weighing up to 18 pounds; samples of complete line of Demagnetizers, Annis 5-heat electric etcher, and split core current transformers.

**Balancer, motor blower**  
R. B. Annis Co.



**THE ARO EQUIPMENT CORPORATION**  
Bryan, Ohio

Booth No. 1608

**ARMOR-TUF SALES CORP.**  
New York, N. Y.

Booth No. 2163

**ARMSTRONG BROS. TOOL CO.**  
Chicago, Illinois

Booth No. 232

**THE ARROW-HART & HEGEMAN ELECTRIC CO.**  
Hartford, Connecticut

Booth No. 1959

**ARROW TOOL & REAMER CO.**  
Detroit, Mich.

Booth No. 1956

**ASSOCIATED AMERICAN TRADING CO.**  
New York, N. Y.

Booth No. 1831

**Personnel:** C. Jay Bansbach, Jr.; George Embree; Leonard Guttman; George Kaplan; George Natsky; Ed Schmidt; Waldemar Syrkus.

**New Products:** New automatic coil winding machines; Dynamic Wire take-off and tensioners for winding at ultra-high speeds with fine wires . . . to No. 52 gage (.0005"); precision profile boring head for boring square, rectangular, hexagonal, oval, or any other shaped holes, or outside profiles; driving centers; optiphonic precision pantograph milling attachment; optical drill chuck; rotary head milling attachment; universal precision jig mill; jig borer; die-sinking machines; universal dividing head.

**ASSOCIATED MACHINE TOOL CORP.**  
Pittsburgh, Pa.

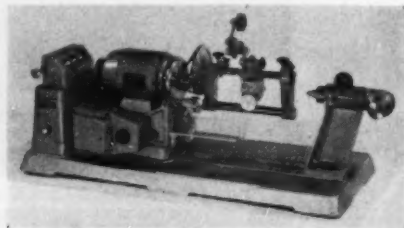
Booth No. 2167

**Products:** Two new models Asquith radial drilling machines. One, the O.D. 3, has a 6 ft. arm with a 15" column; the second, style N.L.D., has a 5 ft. arm and 11" column. Style N.L.D. can also be furnished with a 3½ ft. arm.

**AUSTENAL LABORATORIES, INC.**  
**MICROCAST DIVISION**  
New York, N.Y.

Booth No. 110

**Automatic coil winding machine**  
Associated American Trading Co.





# T-J toughness

means more  
work between  
grinds...

**LOWER  
DIE  
COSTS!**

This T-J Cutter at work on a connecting-rod die block for a board drop hammer. Material being milled is "Hardtem" die steel. A cutter of right design and heat treatment for this high speed work in tough die steels, making possible maximum efficiency of these machines.

## LARGEST SELLING CUTTERS FOR TOUGH DIE STEEL

Be sure of top performance in die sinking milling cutters... specify T-J! They're preferred everywhere today in die and forge shops... because T-J Cutters are extra sturdy... you can raise the feed!

Designed for speed, accuracy and long life... hold a sharp edge longer on job after job... less breakage! Made from an extremely high grade steel... properly machined... scientifically heat-treated and accurately ground. Wide range of styles and sizes to reduce your die costs. Send for new catalog 4-153. The Tomkins-Johnson Co., Jackson, Mich.

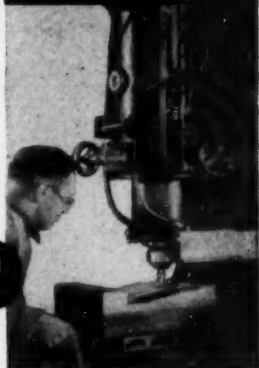
FOR TOUGH JOBS SPECIFY



**TOMKINS-JOHNSON**

DIECASTERS AIR AND HYDRAULIC CYLINDERS CUTTERS CLINDRERS

38 YEARS EXPERIENCE





**AUSTIN IND. CORP.**  
White Plains, N. Y.

Booth No. 1334

**New Products:** Sajo Model UF-54 all-g geared universal milling machine (illustrated) with 7½ hp motor drive to spindle, 1½ hp table feed and rapid traverse motor, 16 spindle speeds from 39 to 1500 and 31 to 1200 rpm.; Sajo Model UF-53, light duty miller; Model PF-49 plain miller; Model RC-250 hydraulic hack saw; Prema Model 02 shaper; VMA Model ES-26" universal shaper. These Swedish machines being shown first time in America.

**AUTOMATIC METHODS INC.**  
Elizabeth, N. J.

Booth No. 1909

**Personnel:** S. Berkant, Pres.; A. Anderson, V.P.; W. E. Ershaw, S.M.; J. Badner, Mgr.; A. Abend, P.A.; W. Sims, Super.; S. Skolnik, Prod. Mgr.; E. Nemic, Foreman.

**New Products:** New autotap lead screw tapping head, larger autotap lead screw tapping attachment support arms, lead screws.

**Other Products:** Complete line of lead screw tapping attachments, including new Autotap tapping heads; larger Autotap tapping attachments; Model 400.

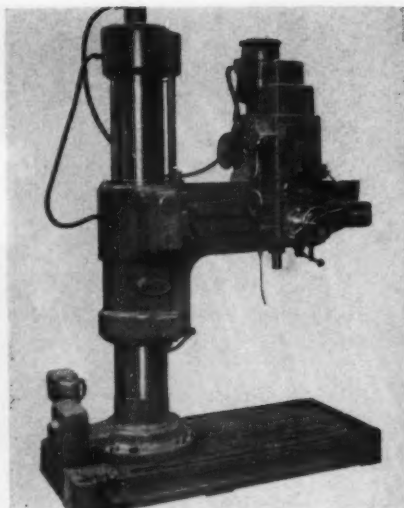
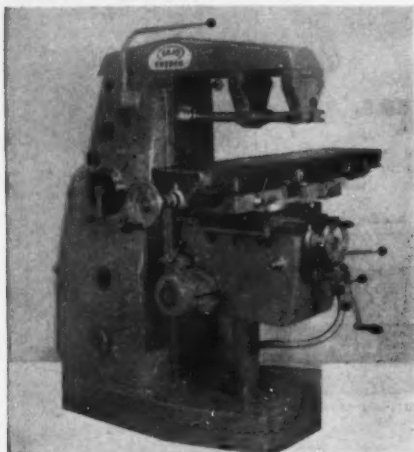
**AUTOMATION MAGAZINE**  
Cleveland, Ohio

Booth No. 1217

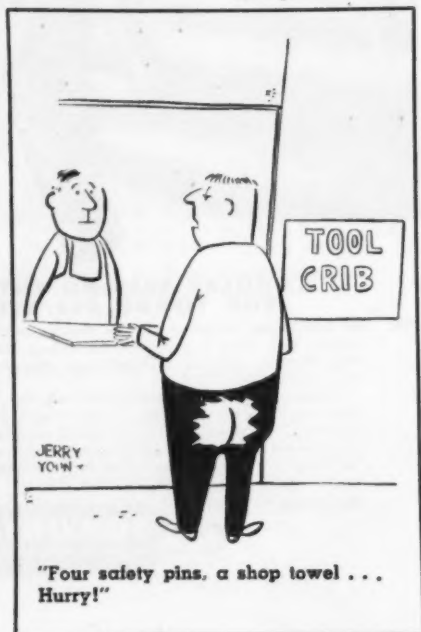
**AUTOMOTIVE INDUSTRIES MAGAZINE**  
Philadelphia, Pa.

Booth No. 839

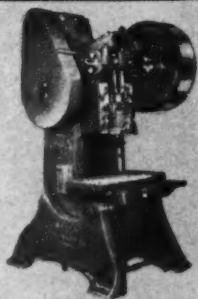
**Sajo universal miller**  
Austin Industrial Corp.



**Asquith radial drilling machine**  
Associated Machine Tool Corp.



"Four safety pins, a shop towel . . .  
Hurry!"



## WALSH PRESSES

**Rugged as the Rockies**

Some made in 1907 with rugged dependability are still operating at a profit.

Wide selection of sizes from 6-65 tons . . . STOCK to 4 weeks delivery.

24 HOUR REPAIR SERVICE

See Bulletin 353 for more details.

**WALSH PRESS & DIE CO.**

6700 W. Illinois St. • Chicago 46, Illinois  
Branches: 8-6700



## SIZE CONTROL REVERSIBLE GAGES

give you 5 or more gages for the price of one—reversible and extra length for new gaging surfaces or no additional cost.

THREAD REVERSIBLES  
PLAIN REVERSIBLES

Complete details on catalog 53

**SIZE CONTROL CO.**

3500 W. Washington Boulevard  
Chicago 12, Ill. • MOnroe 8-6710

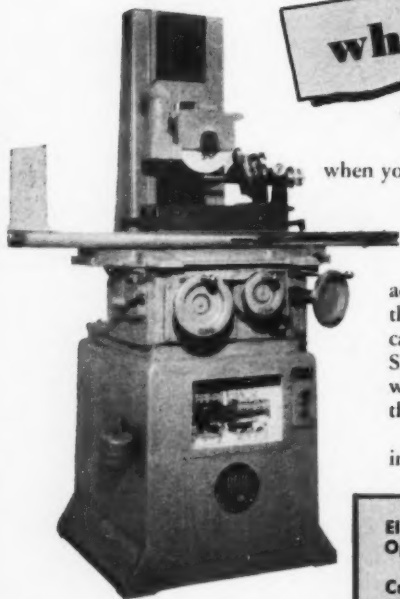
Divisions of  
**AMERICAN GAGE and MACHINE CO.**  
SIMPSON ELECTRIC COMPANY    SIZE CONTROL COMPANY  
WALSH PRESS & DIE COMPANY

**You have precision**

**at your finger-tips**

**when you use**

**REID  
GRINDERS**



Every move counts, with no tiresome reaching or bending, when you operate a Reid. All controls are right at finger-tip level . . . always under your complete control, reacting instantly, without backlash or wheel play.

Such dependable performance, the result of Reid's built-in accuracy, insures precision to meet the closest tolerances. When the shop order reads .0001", put the work on a Reid and you can be sure that the finished piece will pass inspection. Reid Surface Grinders are designed and precision-built by specialists who put the results of over a half-century of experience into their every detail.

Find out the full story on Reid Features for Better Grinding: request your copy of Bulletin 618-6.

Elevating hand wheel, graduated in .0005"

Optional: Vernier, graduated in .0001"

for elevating hand wheel

Cross feed hand wheel, graduated in .001"

Power feed (Model 618V), automatic adjustable cross feed from .006" to .100" at each reverse of table.

Table speed, 12-35 feet per minute

Work capacity: 6" x 18" Table size: 51" x 8"

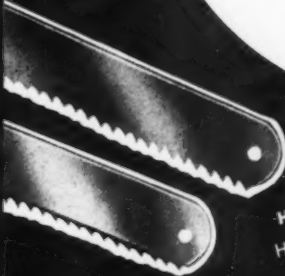
Standard wheel: 7" x 1/2" x 1 1/4"

**Reid Brothers**  **Company, Inc.**


BEVERLY, MASSACHUSETTS

# THE LENOX

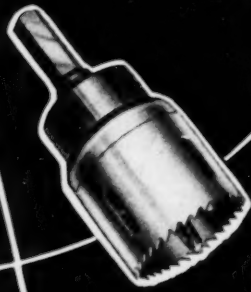
FAMILY CIRCLE



**HACK SAW BLADES**  
Hand and Power Sizes  
High Speed Steel.



**BAND SAW BLADES**  
For all Machines  
100 Coil Stock - Welded Blades



**HOLE SAWS**  
High Speed Steel  
Welded Edge



**GROUND  
FLAT STOCK**  
Precision Ground

"THE TOOLS IN THE PLAID BOX"

**AMERICAN SAW & MFG. COMPANY**  
SPRINGFIELD, MASS.

HACK SAWS • BAND SAWS • GROUND FLAT STOCK • HOLE SAWS

PIONEERS IN CARBIDE FOR METAL CUTTING TOOLS

WESSON

# WESSON'S UNIQUE METHOD OF CONTROL GIVES YOU THE PERFECT UNIFORMITY THAT MAKES

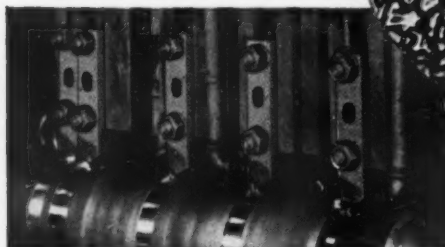
*The Outstanding Metal Working Carbide!*

WESSONMETAL

Carbide Blades  
A Trip-In Quality



YOUR WESSON TOOL ENGINEER  
HAS ACTUAL CASE HISTORIES TO  
PROVE THAT WESSON CONTROL  
ASSURES UNIFORMITY AND HIGHER  
PRODUCTION IN ALL TYPES OF  
METAL WORKING... ASK TO SEE  
THESE REMARKABLE REPORTS



Proper Thermal  
conductivity

More resistance  
to transverse rupture

Wider modulus  
of elasticity

Balanced density

Accurate hardness

Greater compressive  
strength (PSI)

Minimum thermal  
expansion

Greater oxidation  
resistance

Greater tensile  
strength (PSI)

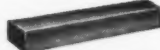
NOTE: Microphoto shown is of special  
Wessonmetal grade.



Solid carbide  
blades, blanks,  
formed shapes

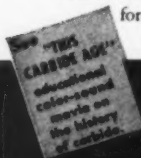


Solid  
carbide inserts



**W**essonmetal is a superior metal working carbide because Wesson Metallurgists, with over 30 years of thorough training and practical experience, have pioneered and developed scientific quality controls unique in the carbide industry. The result is an exceptional uniformity of grade that keeps machines producing. The growing list of case histories in the Wesson files prove the dependability of Wessonmetal.

Ask the Wesson man in *your area* to show you these outstanding performance stories. He probably has several that apply to *your job*.



## WESSON METAL CORPORATION

LEXINGTON 34, KY.

Affiliated with WESSON COMPANY, Detroit, Mich.

SEE US AT BOOTH 1255 ASTE TOOL SHOW

**ERIC R. BACHMANN CO.**  
Long Island City 1, L.I., N.Y.

**Booth No. 1055**

**Personnel:** Eric R. Bachmann; Kurt R. Picard; Dr. Rotzoll; Bruno Jaster.

**New Products:** Universal tool and cutter grinder, Model SW 2 NS; copying lathe, Model DZ 508 BRK; vertical milling machine, Model FV 4 FS; universal milling machine, Model FU 5 FS; centerless grinder, Model SR 15-2; Swiss type automatic, Model GM-12; gear hobbing machine, Model W-1; "Atlas" shaper, Model 650; hand turret lathe; hobs and cutting tools.

**BARNES DRILL CO.**  
Rockford, Ill.

**Booth No. 907**

**New Products:** (1) Combination conveyor-filter (illustrated) with extra heavy chip removal, by conveyor section; (2) Kleenall combustion magnetic and fabric filter—fluids first exposed to intense magnetic field by passing through flow channel surrounding rotating magnetic drum, then particles are scraped off—coolant passes through membrane of predetermined porosity, thus expendable filtering medium held to minimum; (3) honing abrasive stones; (4) honing tools, general purpose and high production.

**Other Products:** Magnetic automatic coolant separator.

**THE BARRY CORP.**  
Watertown, Mass.

**Booth No. 2171**

**THE BASCO MANUFACTURING CO.**  
Stamford, Conn.

**Booth No. 2115**

**W. O. BARNES COMPANY, INC.**  
Detroit, Mich.

**Booth No. 1354**

**BAUSCH & LOMB OPTICAL CO.**  
Rochester, New York

**Booth Nos. 108, 109, 110**

**Personnel:** B. Day; J. Hayes; B. Paschal; E. Principe.

**New Products:** Bench comparator, understage illumination permits direct comparison of small, flat, irregularly shaped parts without aid of special fixtures; interchangeable lenses provide magnifications of 10, 20, 25, 31.25 and 50 X.

**Other Products:** Contour measuring projector, toolmakers' microscopes.

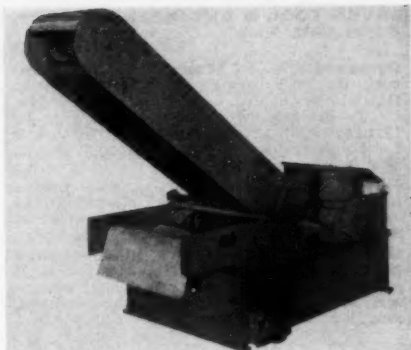
**BAY STATE ABRASIVE PRODS. CO.**  
Westboro, Mass.

**Booth No. 1631**

**Personnel:** E. W. Farmer; O. S. Buckner; E. C. Hughes; G. Wodehouse; E. L. Auker; W. E. Moody; Allen Hughes; A. Ahlstrom; R. Davis; R. DeLong; W. H. Fellows; and R. E. Lattinville.

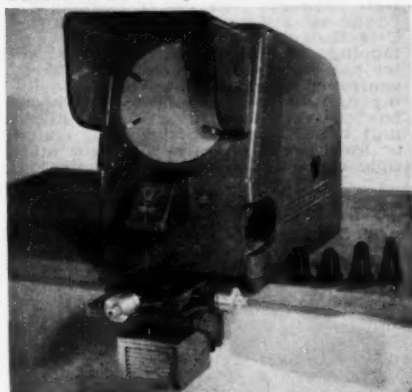
**New Products:** Gritcloth sanding fabric, diamond wheels.

**Other Products:** Complete line of abrasive products.

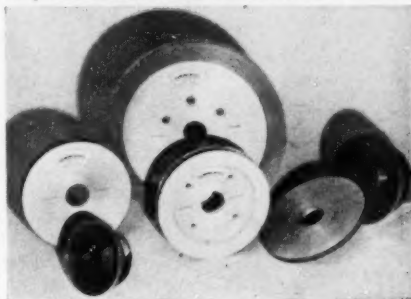


**Combination conveyor filter**  
Barnes Drill Co.

**Bench comparator**  
Bausch & Lomb Optical Co.



**Diamond wheels**  
Bay State Abrasive Products Co.





**BEAVER TOOL & ENGINEERING CORP.**  
Royal Oak, Mich.

**Booth No. 517**

**Personnel:** A. E. Streadwick; W. Johnson; R. Jackson; F. R. Pajares; R. L. Blanchard; J. A. Hope; E. B. Rhodes; C. J. Lindegren, Jr.; H. J. Lock; R. Dengel; R. C. Neal; H. Wolff; G. Voigt; L. N. McLouth; C. J. Mahar; W. E. Vogel.

**New Products:** Beaver quick change holder with new type shank, drill drivers, reamer drivers, tap drivers, micro nuts, precision boring head.

**Other Products:** Beaver quick change holders & adaptors, milling cutters, drill reamer & tap drivers, N.M.T.B. standard milling machine taper arbors, adaptors and boring heads.

**BECKETT-HARCUM CO.**

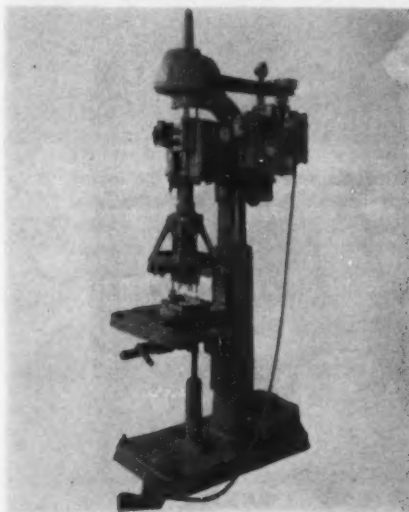
Wilmington, Ohio

**Booth No. 1064**

**Personnel:** Don Beckett; William N. Beckett; Don Williams; Robert Barnes; James M. Kemper; Harry Hackett; Floyd Lego.

**New Products:** New design Beckett Hi-Cyclic air and hydraulic valves, Model C-16 Beckett heavy duty drilling and tapping machine (illustrated). The latter has electrically controlled air feed; controlled thrust provides correct drilling and tapping action; sliding head, box column; floor, bench and multiple unit tables; taps direct without clutch or lead screw; operates single or multiple spindle; large range capacity.

**Drilling, tapping machine**  
Beckett-Harcum Co.



**Other Products:** Air and hydraulic valves, side arm drill press feeds, Model W-20 Beckett drilling and tapping machine; Model C-16 heavy duty Beckett drilling and tapping machine.

**BLACK DRILL CO.**

Cleveland, Ohio

**Booth No. 1727**

**Personnel:** J. A. Remeke, Sales Mgr.; F. G. Gepfert, Pres.; F. H. Robertson; O. A. Muenz; C. L. Morgan.

**New Products:** Self-centering vise. Illustration shows this vise used in conjunction with two Black drilling units for centering drill blanks.

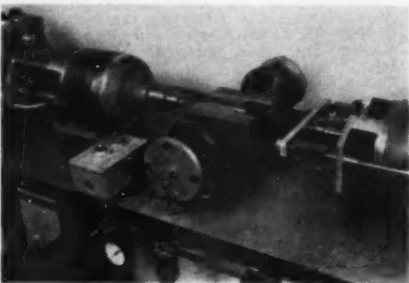
**Other Products:** Black automatic drilling units, Hardsteel drills for drilling hardened steel.

**BLACK & WEBSTER, INC.**

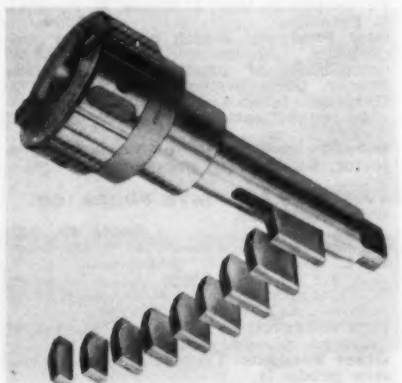
Newton, Mass.

**Booth No. 642**

**Self-centering vise**  
Black Drill Co.



**Quick change holder**  
Beaver Tool & Eng. Corp.



**EDWARD BLAKE CO.**

West Newton, Mass.

**Booth No. 1626**

**Personnel:** Edward Blake; Gordon D. Bennett; C. W. Codde; George W. Cordonna; Wayne Davies; T. E. Dimke; Carl W. Draeger; Fritz Fiesseimann; John E. Figner; Lester M. Gill; Robert Guest; Fred C. Kern; Robert T. Lee; E. H. Schneider; Louis J. Smith; William C. Towne; Warren Varley; David M. Warren.

**New Products:** Tap chamfer grinder cabinet pedestal; Black Diamond drill grinder cabinet pedestal.

**Other Products:** Blake flute grinder; Blake tap chamfer grinder; Black Diamond precision drill grinder; University surface finish standards.

**HENRY P. BOGGIS & CO.**

Cleveland 10, Ohio

**Booth No. 743**

**Personnel:** Henry P. Boggis, General Manager; Frank Smocinski, Demonstrator and Service.

**New Products:** Small grinding unit which will accommodate Hybco chamfer sharpening heads.

**Other Products:** Hybco Model 1100 tap grinder which completely reconditions taps, sharpening chamfers, flutes and gun points.

**BOKUM TOOL COMPANY**

Detroit, Mich.

**Booth No. 242****BOICE MFG. CO.**

Staatsburg, N. Y.

**Booth No. 341**

**New Products:** (1) Dial indicating snap gage (illustrated) has flat parallel anvils permitting gage measurements to be taken close to shoulders, 5-1 magnification of anvil travel is read on indicator, over travel on movable anvil, to prevent indicator jamming; (2) snap gage master pre-set with gage blocks, locked; (3) dial bore gage Setmaster provides for easy insertion and removal of gage blocks; (4) comparator gage, equipped with dial indicator, for checking length dimensions on shafts and other assemblies.

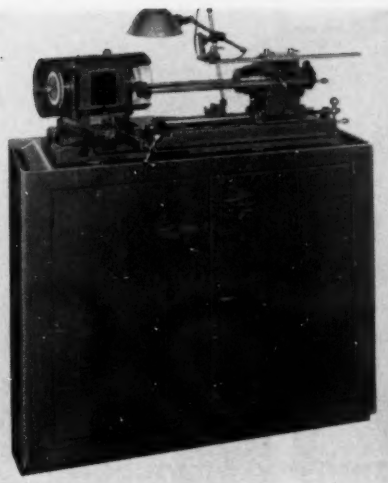
**BOYAR-SCHULTZ CORP.**

Chicago 12, Ill.

**Booth No. 1803**

**New Products:** Model SK knurling and thread rolling tool; dust collector designed primarily as a built-in unit for use with their 6-12 surface grinder; revolving deep hole drilling tool; hydraulic surface grinder Model 6-18H. The surface grinder is built to accommodate a 6 x 18 chuck. Its actual capacity is 7 1/4" x 19". It takes an 8" x 3/8" or 8" x 3/4" grinding wheel with a 1 1/4" hole. Vertical capacity is 17" from table to center of spindle.

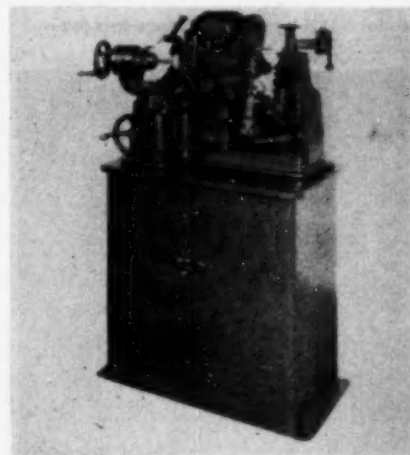
**Other Products:** Complete line of surface grinders; screw machine tools; general line of tools and attachments.



**Blake tap chamfer grinder**  
Edward Blake Co.

**Hybco tap grinder**

Henry P. Boggis &amp; Co.

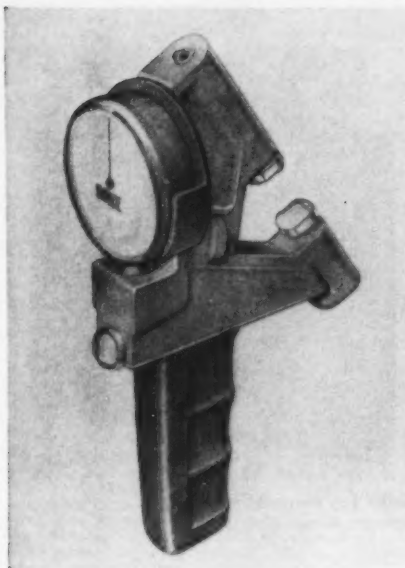


**BRADLEY MACHINERY COMPANY**  
Detroit, Mich.

**Booth No. 507****BRIDGEPORT MACHINES, INC.**

Bridgeport, Conn.

**Booth No. 1826**



Dial indicating snap gage  
Boice Mfg. Co.

Model 6-18H hydraulic surface grinder  
Boyar-Schultz Corp.



**THE BRISTOL CO.**  
Waterbury 20, Conn.

Booth No. 1964

**Personnel:** S. I. Lyons; W. Magenau; E. L. Sinkwich; G. P. Loneragan; T. E. Cogan; D. J. Yates; G. Budd; W. Williamson; L. M. Gibbs; F. T. Colwell.

**Products:** Bristol's multiple spline and hex socket set screws; socket cap screws; socket flat head cap screws; socket shoulder screws; socket pipe plugs; keys.

**BROWN & SHARPE MFG. CO.**  
Providence, R. I.

Booth No. 1402

**Products:** Line of precision tools; Jo-Blocks and electronic measuring equipment for extremely fine measurements; milling cutters and end mills with machine accessories such as arbors, collets and vises; tooling equipment for automatic and hand screw machines including collets and fingers; surface plates and the popular permanent magnet chucks. The Intrimik, a new internal tri-point micrometer for measuring holes and bores over a wide range of sizes, and an electronic caliper which measures work precisely, either on the bench or in the machine. A full line of the new Brown & Sharpe micrometers.

**BROWN VERTICAL MILLING HEAD CO.**  
Los Angeles, Calif.

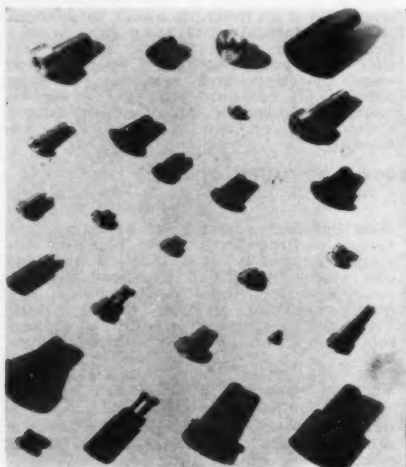
Booth No. 2162

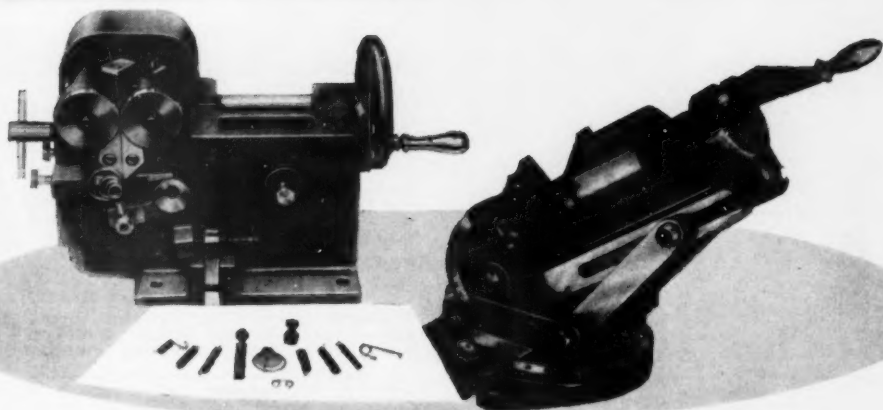
**CHARLES BRUNING COMPANY, INC.**  
Chicago 41, Ill.

Booth No. 320

**Personnel:** R. W. Cooke; J. M. Gilmour; W. L. Ege; DeWitt C. Smith; John P. Fineran; John R. Schwab; LeRoy Hodges; T. Harris Keon; J. P. Riff; Earl C. McVaugh; Glen C. Wholey; Curtis

**A collection of screws**  
The Bristol Co.





## spotlight on two precision, time-saving, labor-saving tools

When you need a replacement or experimental spring, any shape, diameter or pitch from flat or round wire sizes .005" to .125", you can produce it in a matter of seconds with the new Perkins Precision Spring Coiler! You entirely eliminate the use of

arbors, yet turn out precision springs — torsion, compression, extension tapered, or special springs — coiled either left or right hand, in any desired length, any diameter from  $\frac{1}{16}$ " to 12" and larger, with or without initial tension, and with open or closed ends. Eliminate expensive special orders and costly production delays! Make your own springs to exact specifications for replacements or experimental work. Make them fast right in your own shop!



*Power model for continuous runs, on welded steel console base.*

**EXCLUSIVE DISTRIBUTORS OF  
PRECISION MACHINE  
TOOLS**

**Connors and Davis  
Sales Corporation**

**CIRCUIT AVENUE  
WEST SPRINGFIELD, MASS.**



Accurately set in all three planes in only 15 seconds, this sturdy precision vise made in two capacities saves time and headaches for progressive shop operators and pays for itself quickly. Only

7" high (lowest in the trade), **OMNI-VISE #4**, shown at top, is tough, weighs 74 lbs. Jaws are 4" x  $1\frac{1}{2}$ ", open to 4". Base is 9" in diameter with one side straight. Inset shows **OMNI-VISE #2**, a precision low-priced vise. Users find it exceptional for grinding compound angles on carbide tools. Weight, 16 lbs. Height,  $4\frac{3}{4}$ ". Jaws,  $2\frac{1}{8}$ ". Opening,  $2\frac{1}{8}$ ". Base,  $7\frac{1}{4}$ " x 5". For grinding, drilling or general work at any angle, by hand or machine, an **OMNI-VISE** is the machinist's choice.

**CONNORS AND DAVIS Sales Corporation**  
404 Circuit Avenue, West Springfield, Mass.

Please send detailed information and prices on:

**PERKINS SPRING COILER**

hand ☐ power ☐

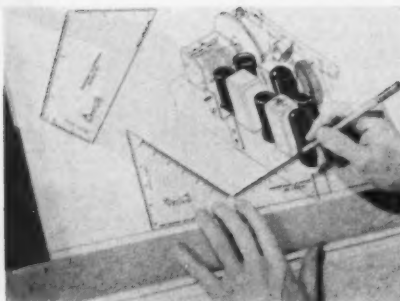
**OMNI-VISE #4** ☐ **#2** ☐

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_



**Technical illustration templates**  
Charles Bruning Co., Inc.

Mayhan; E. G. Davison.

**New Products:** New sensitized paper for Diazo type copying machines; Bruning technical illustration templates; Bruning circular drawing machine; Brunson jig transit; Brunson optical transit square.

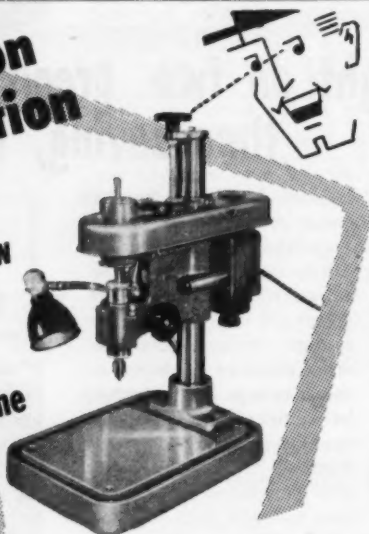
**BRYANT CHUCKING GRINDER CO.**  
Springfield, Vt.

**Booth No. 220**

**Products:** Internal and external thread gages, portable and bench; built on principle of an "expanding" master

**Attention  
production  
men!**

**here's how  
to  
reduce  
costly  
downtime**



It will pay you  
to write for  
Free Bulletin  
No. 181

**Dynamometers  
Static  
Balancers  
Precision  
Drilling  
MACHINES**

In production drilling, there's a definite relationship between PRECISION and DOWNTIME . . . Precision machines pay off even though you do not need to hold close tolerances . . . Increased precision prolongs machine life and reduces maintenance work . . . That's why Taylor HI-EFF Drilling Machines are ideal for long production runs . . . The superb precision features built into each unit result in important savings through greatly reduced downtime.

**TAYLOR DYNAMOMETER  
AND MACHINE COMPANY**

6411 River Parkway

Milwaukee 13, Wisconsin



## Tests Prove That CIMCOOL With "95-16" Doubles Rust-Control

The good news is being flashed coast-to-coast. Actual scientific laboratory and shop tests prove that adding "95-16" to CIMCOOL® doubles rust-control as compared with a formula without this amazing ingredient.

And while doubling rust-control, this radically new and different coolant—this *chemical emulsion*—saves you money many other important ways. Plant after plant reports that CIMCOOL covers 85% of all metal cutting jobs... and does a better job. It permits faster speeds because it combines friction reduction and cooling capacity in a degree never before attained by old-fashioned coolants. It's longer lasting in machines. So CIMCOOL reduces downtime

and cuts labor costs for cleaning and changing.

We invite you to prove to yourself what scientific tests and on-the-job experience have already proved. Put CIMCOOL to the test in your own plant—on your own machines. For a demonstration write, wire or telephone Sales Manager, Cincinnati Milling Products Division, The Cincinnati Milling Machine Co., Cincinnati 9, Ohio.

\*Trade Mark Reg. U.S. Pat. Off.

# CIMCOOL

**for 85%**  
of all metal cutting jobs

A PRODUCTION-PROVED PRODUCT OF THE CINCINNATI MILLING MACHINE CO.



plug for checking internal threads or a "contracting" master ring for checking external threads. A new line of granite surface plates will be exhibited. Standard sizes range from 12" x 18" up to 36" x 48". Over-all accuracy to .0001 in small sizes, .0002 in larger.

**BRUSH ELECTRONICS COMPANY**  
Cleveland, Ohio

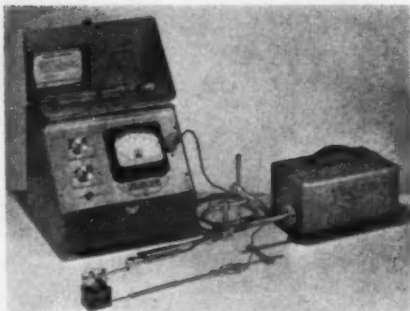
Booth No. 916

**Personnel:** F. Witzke; T. Thompson; W. Stern; H. Schechter; E. Hensley.

**Products:** Surfindicator, an instrument for the measurement of surface roughness, accessories.

**Surfindicator**

Brush Electronics Co.



# INCREASE



## one drill press does the work of **FOUR**

Send **NOW** for additional information on how **YOU** can increase **YOUR** production without additional equipment!

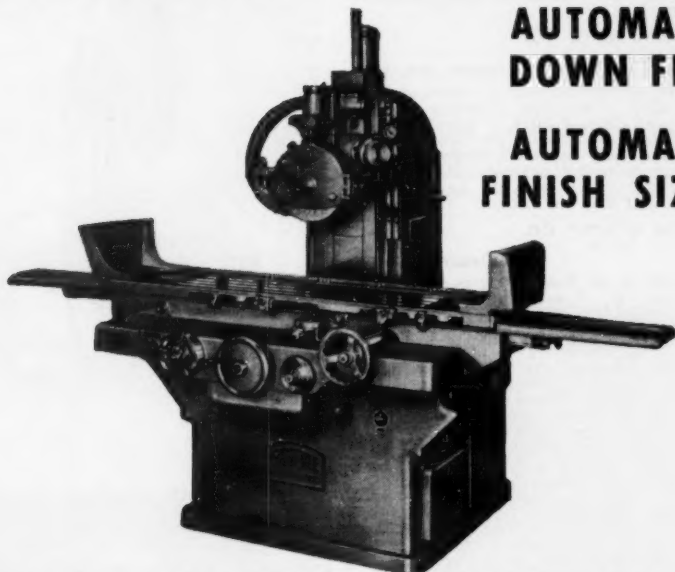


Drill — ream — countersink and counter-bore, all on one drill press without setting up for each operation. A simple rotation of this turret head brings any one of four drills or cutting tools into position. Accurate — fast — economical! Try Quadrill — it will earn you more profit thru less production cost.

**CHICAGO QUADRILL**  
*Company*

1846 BUSSE HIGHWAY, DESPLAINES, ILLINOIS

# MÄGERLE (SWISS) HYDRAULIC SURFACE GRINDERS



**AUTOMATIC  
DOWN FEED**

**AUTOMATIC  
FINISH SIZING**

- A work measuring instrument shows the difference between work size and required final size during operation.
- The automatic feeding and sizing is powered by a separate electrical unit.
- The built in diamond wheel dresser automatically resets the final sizing mechanism for wheel wear.
- The machine requires no attendance during the grinding operation.
- Finishes within .0002 are secured on repeated chuck loadings automatically.
- Rapid traverse is provided for both head and cross-slide.
- Furnished with heavy duty cartridge spindle assembly.
- Available with infinitely variable grinding wheel speed.
- Extremely rugged construction and very easy to operate.
- Available in 2 foot, 3 foot and 4 foot models.

*Write for our eight page illustrated brochure.*

## **PELLOW MACHINE CO.**

**13502 FOLEY AVENUE**

**DETROIT 27, MICHIGAN**

**BUCK TOOL COMPANY**  
Kalamazoo, Mich.

**Booth No. 1647**

**Personnel:** R. E. Buck, J. R. Buck, R. O. Milham, T. D. Kinney, W. A. Anderson.

**New Products:** The new 12" "Adjust-Tru" air chuck will maintain precision within .001". It is a wedge-type actuated chuck. The manufacturers claim: time-saving in machining top jaws; accuracy of .001" or finer; hardened top jaws for long wear; it can be adjusted true under full line pressure.

**Other Products:** Adjust-Tru scroll chucks; Adjust-Tru air chucks; independent chucks.

**BURG TOOL MFG. CO.**  
Los Angeles, Calif.

**Booth No. 1635**

**Products:** Complete line of turret drills; Model 3BH, 8 spindle machine (illustrated) and Model 2BH, 6 spindle, featured. Both automatic, hydraulic; pre-selective feeds, speeds infinitely variable; skip indexing; precision depth control. Model 2B, manually operated 6 spindle, will also be shown.

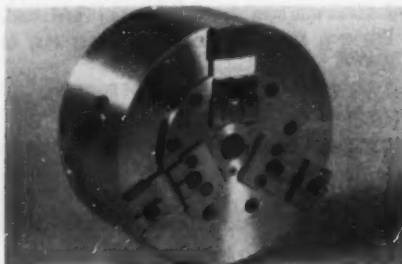
**CADILLAC STAMP CO.**  
Detroit 12, Mich.

**Booth No. 500**

**Personnel:** E. H. Novak, Owner; C. Nelson, S.M.; F. Armstrong; D. Elliott; R. H. Laird, Jr.; D. Grubb; A. L. Gewertz; A. T. Mullen; P. Kemp; F. W. Cooper; D. Cooper.

**Products:** Cadillac hydraulic marking machine; No. 115 hand marking machine; No. 52 air impact presses, numbering heads; steel stamps (standard and special); type holders (hand style and special). The Cadillac No. 52 air impact press, with automatic rotary feed table, feeds with speed and efficiency from the magazine to the 8-station rotary table. The parts are carried into the marking position, and then are automatically air ejected. The rotary table is supported by a heavy steel anvil at the marking position—minimizing direct shock on the rotary table, thereby eliminating any possible damage to the rotary table mechanism.

**12 "Adjust-Tru" air chuck**  
Buck Tool Co.

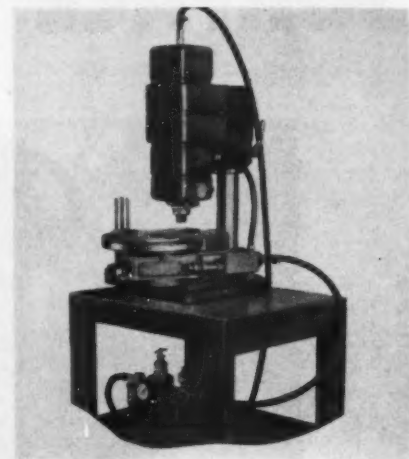


**CAMPBELL DIV. AMERICAN CHAIN  
& CABLE CO., INC.**  
Bridgeport 2, Conn.

**Booth No. 1802**

**New Products:** Campbell No. 28 Sever-All is available in two types: stationary

**No. 52 air impact press with automatic  
rotary feed table**  
Cadillac Stamp Co.



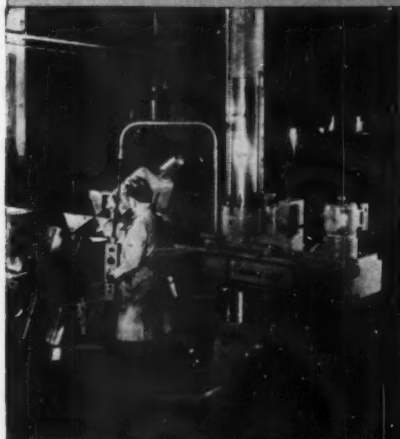
**Turret drill**  
Burg Tool Co.



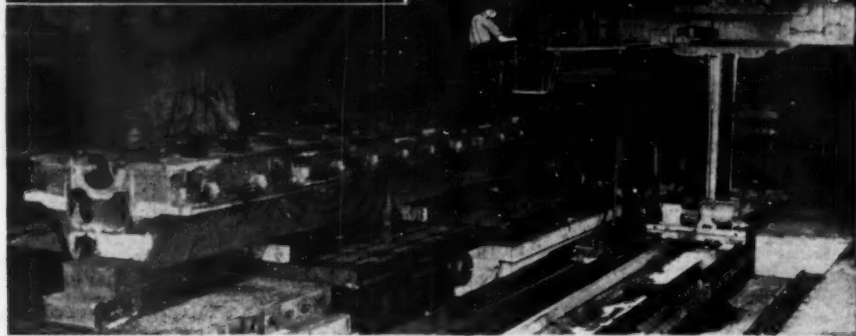
# Kaukauna

# At Work....

## UNIVERSAL RADIAL DRILLING MACHINES



Drilling angular holes in bore of casting is a job that requires accuracy, fast tool positioning and plenty of power to take full advantage of the highest feeds and speeds permissible with modern cutting tools. Kaukauna Universal Radial Drills have the power, accuracy and stamina to do this work quickly, easily and at low cost. A versatile line of machines with simplified controls, they maintain efficient high production on large, unwieldy workpieces or small production parts, and perform drilling, reaming, boring, counterboring, tapping and spot-facing operations. They do jobs that no other machines can do . . . save time and money.



With extended column, runway and reach, this Kaukauna Universal Radial Drilling Machine is saving set-up time by drilling, tapping, driving studs and spot-facing with speed and accuracy from any angle on diesel engine bases and blocks.

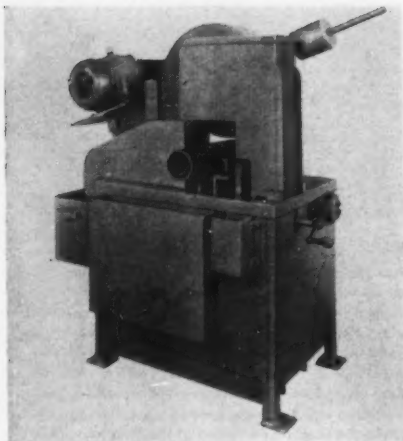
Kaukauna builds Universal Radial Drills and Horizontal Drilling Machines in a range of sizes which meet practically all requirements in modern production practice. Write today for descriptive catalog or ask representative to call.



# Kaukauna

## MACHINE CORPORATION

KAUKAUNA, WISCONSIN, U.S.A.



**Campbell No. 28 Sever-All**

Campbell Mach. Div., Am. Chain & Cable Co., Inc.

and portable, and has ample cutting capacities, as follows: for solid steel, up to 4"x4"; for angles and channels, 8"; for tubes and pipes, 4" O.D.; for 45° angles and channels, 4½"; for 45° pipes, 4" O.D.

**Other Products:** Line of cutting-off machines and nibblers.

**CARBIDE PROCESSORS' SUPPLY CO.**  
Detroit, Mich.

Booth No. 2166

**CARBIDE TOOL COMPANY**  
Detroit, Mich.

Booth No. 2166

**CARSOLOY DEPT. GEN. ELEC. CO.**  
Detroit, Mich.

Booth No. 1603

**New Products:** Latest applications of new cemented carbide Grade 370, for heavy duty steel cutting.

**Other Products:** Thermistors for delicate temperature detection, permanent magnets, Hevimet for balancing applications and radiation shielding, and cemented carbide for wear resisting and cutting tool applications.

**CARPENTER STEEL CO.**  
Reading, Pa.

Booth No. 102

**Personnel:** J. H. Parker, Chairman of Board; F. R. Palmer, Pres.; J. W. Thompson, Product Mgr.; H. S. Potter, V.P.; G. V. Luerssen, V.P.; and W. M. Loos; H. A. Brossman; N. W. Calkins; R. F. Koch; M. J. Holleran; M. H. Goodman; R. L. Riegel; L. T. Miller; G. H. Edmonds; E. Von Hambach; A. E. Keller; R. A. Kline; R. A. Reeser; G. E. Brumbach;

G. J. Schad; J. S. Pendleton; Dr. C. B. Post; W. A. Schlegel; W. H. Kemper; B. T. Lanphier; W. A. Eberly; A. W. Taylor; N. C. Einwechter; R. A. Kokat; J. E. Murphy; J. P. Moore.

**New Products:** Application ideas on specialty steels for reducing tooling and production costs emphasized in display pieces, samples, case studies. New air-hardening tool and die steel combines deep hardening characteristics with low temperature heat treatment inherent in oil-hardening steels. Another product is die steel that hardens at 1420° to 1450°.

**Other Products:** Various grades of tool steel drill rod; four stainless steels pioneered by Carpenter.

**CARTER CONTROLS, INC.**  
Lansing, Ill.

Booth No. 512

**CERRO DE PASCO CORPORATION**  
New York, N.Y.

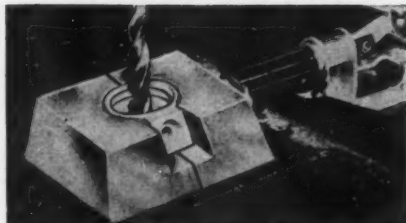
Booth No. 952

**CHEMICAL DEVELOPMENT CORP.**  
Danvers, Mass.

Booth No. 2107

**Personnel:** A. M. Creighton, Jr., Pres.; D. D. Flaherty; H. A. Wright.

**New Products:** Plastic steel for making jigs, fixtures, forming dies and other products; strippable coating for the protection of tools and dies during storage—solvent based; strippable coating for the protection of polished sheets during fabrication—solvent based; cement for bonding grinding segments.



Devcon, the plastic metal  
Chemical Development Corp.

**CHICAGO PNEUMATIC TOOL CO.**  
New York, N.Y.

Booth No. 1330

**CHICAGO RIVET & MACHINE CO.**  
Bellwood, Ill.

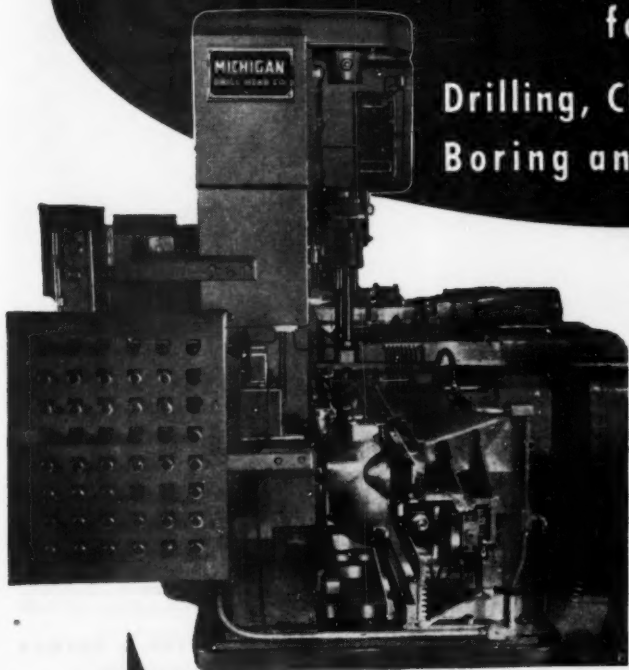
Booth No. 1655

**Personnel:** A. J. Dunsmore, V.P. and S.M.; Chas. S. Barans, Asst. S.M.; Joseph A. Rehm, Asst. S.M.; W. O. Shineflug, Chief Eng.; R. T. Brosius; R. S. Christie; Sam Christie; W. A. Calhoun; J. A. Kendall; Lynn Grace; J. M. Murphy; C. H. Reineck; Don Reineck; Roy J. Reineck; W. M. Fahey.  
**New Products:** No. 106 riveter for compression rivets. A double setting automatic rivet setter designed for cutlery work. Compression rivets are handled and set in pairs in simultaneous operation. The tubular rivet feeds from the

# TRANSFER MACHINE

for

Drilling, Chamfering,  
Boring and Tapping



Shown is Four Double End Machine with a transfer System moving Torque Converter Housing automatically through the machine. In addition the part is laid on a roller conveyor after all the machining operations are completed. Machine is designed in such a manner that additional stations can be added at any time. The part, when placed in the transfer track, makes a limit switch and the cycle is automatic.

WE SOLICIT YOUR INQUIRY AS TO ANY SPECIAL DRILLING,  
MILLING OR BORING OPERATIONS YOU MAY HAVE



## MICHIGAN DRILL HEAD CO.

971 E. EIGHT-MILE ROAD

HAZEL PARK, MICH.





**A double automatic rivet setter**  
Chicago Rivet & Machine Co.

lower portion of machine, with shank up; and solid rivet drives from the upper part of the machine with shank down.

**Other Products:** Tubular & split rivets; automatic rivet setting machines—single, multiple & dial attachment.

**CHICAGO TOOL & ENGINEERING CO.**  
"PALMGREN STEEL PRODUCTS"  
Chicago, Ill.

**Booth No. 1915**

**CHICAGO TRAMRAIL CORP.**  
Chicago, Ill.

**Booth No. 1735**

**Personnel:** C. C. Riemenschneider, Pres.; S. W. Fountain, Vice-Pres.; and H. W. Thompson, F. W. Ballantine, J. P. Des-cour, sales engineers.

**Products:** Working model of overhead stacker crane for complete selective storage systems.

**CHRYSLER CORPORATION**  
AMPLEX DIVISION  
Detroit, Mich.

**Booth No. 1827**

**THE CINCINNATI MILLING MACHINE CO.**  
Cincinnati, Ohio

**Booth No. 1202**

**CITIES SERVICE PETROLEUM, INC.**  
New York, N.Y.

**Booth No. 436**

**CIRCULAR TOOL CO., INC.**  
Providence, R. I.

**Booth No. 228**

**Personnel:** R. F. Anderson, V.P.; A. G. Ryone, Plant Supt.; Miles D. Pilon, S.M.



**Circoloy saws**  
Circular Tool Co.

**New Products:** New line of circular metal cutting saws made of "Circoloy," designation for a product that fills the performance gap between carbide and high speed steels.

**Other Products:** A complete line of circular metal cutting tools including slitting, slotting and cut-off saws, commutator slotting saws, slitting discs for cutting various types of materials, combined drills and countersinks, center reamers, etc. This line is made in carbon steel, high speed steel, Circoloy, solid tungsten carbide and carbide tipped.

**THE CLEVELAND CUTTER & REAMER COMPANY**  
Cleveland, Ohio

**Booth No. 2072**

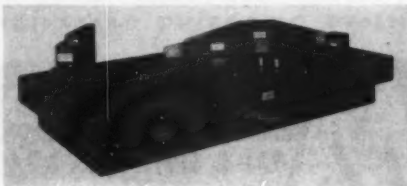
**COLLINS MICROFLAT CO., INC.**  
Los Angeles, Calif.

**Booth No. 430**

**Personnel:** Lee Collins.

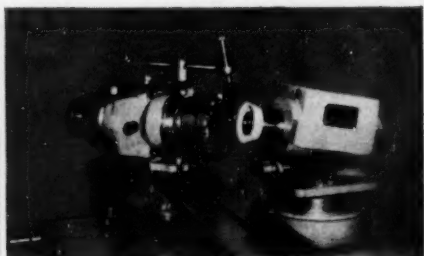
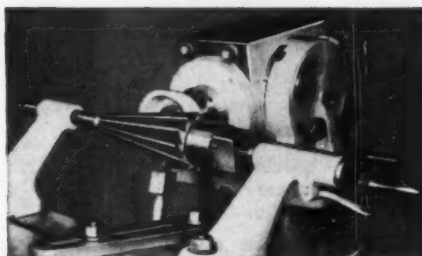
**Products:** Microflat black granite surface plates, black granite layout plates, straight edges, toolmaker's flat, parallels.

**Black granite plates**  
Collins Microflat Co., Inc.



*Specify* THIS NEW **POPE** SUPER PRECISION  
1 HP, 3600 RPM MOTORIZED TOOL AND CUTTER GRINDER  
CLEARANCE ANGLE SWIVELLING HEAD

*With Angular Adjustment In A Vertical Plane*



**TIME AND MONEY SAVING FEATURES:**

1. Cup wheels, generally considered best for cutter grinding, can be used for practically all clearance angles on this new head.
2. Cup wheels produce a cutting edge on tools that lasts longer because it is stronger.
3. The tooth rest remains on the center line of the cutter for practically all grinding on centers or in the work head.
4. Most cutters and reamers can be ground all over with one set-up, using the swivelling table and Pope tilting head. The usual second and third set-ups are no longer required.
5. All clearance angles read directly in degrees from the scale provided on the head. Mistakes on clearance angles are avoided.
6. The right clearance angle is assured on tools difficult to grind, such as slab mills, taper reamers, angular cutters and form tools.
7. 3600 R.P.M. — one wheel speed — safe for all wheels generally used on cutter grinders. Heat checking of cutters is virtually eliminated.
8. The operating ease and convenience of this new Pope Head with the angular adjustment in the vertical plane saves you time and money on every tool you grind.

**ASK FOR COMPLETE SPECIFICATIONS**

**No. 96**

*Specify*

**POPE**

PRECISION SPINDLES

**POPE MACHINERY CORPORATION**

*Established 1920*

261 RIVER STREET • HAVERHILL, MASSACHUSETTS

**COLONIAL BROACH COMPANY**  
Detroit 13, Mich.

**Booth No. 1613**

**Products:** Color and black and white slide films showing closeups of broaches and broaching fixtures in actual operation will feature Colonial Broach Company's exhibit. Products and services of two Colonial Broach affiliates, New Method Steel Stamps, Inc., and Colonial Bushings will also be displayed in the same booth.

**COLUMBIA EXPORT CO., INC.**  
Long Island City, N.Y.

**Booth No. 1903**

**Personnel:** Max A. Haas, Pres., Mrs. Max A. Haas, Louis Clare, Carl W. Strohmeyer, Helmuth Stauch.

**New Products:** 'ABA' optical jigborer. Table size is 26"x16"; maximum distance from the table to the lower edge of the boring head is 21". This jigborer does not depend for accuracy on lead screws or measuring rods, as the built-in Leitz optical system permits direct reading in .00005". 'Mammut' vertical milling machine No. 4, Type V 20 with 25 or 30 hp motor.

**Other Products:** 'Karstens' universal cylindrical grinder, Type US 15; 'Atlas' shaper, Type Record 500.

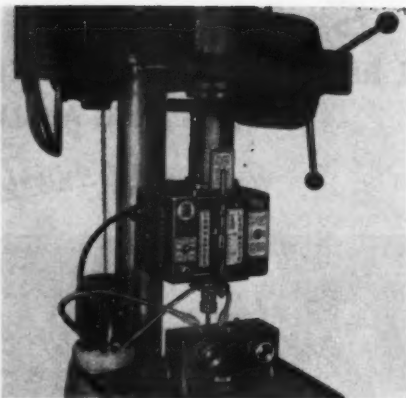
**COMMANDER MFG. CO.**  
Chicago, Ill.

**Booth No. 823**

**Personnel:** F. S. O'Laughlin, J. H. Chamberlain.

**New Products:** "Lead-Matic" precision tapper with lead screw; makes drill press a precision tapping unit.

**"ABA" jigborer, type VL600**  
Columbia Export Co., Inc.



**Precision tapper**

Commander Mfg. Co.

**Other Products:** Multi-drill, Select-A-Spindle drill press turret, tapper, chip breaker, Multi-Angle drill unit, drilling coolant table.

**COSA CORP.**

New York, N. Y.

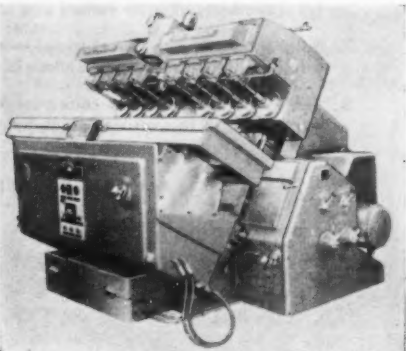
**Booth No. 1559**

**New Products:** Rigid-Rorschach (Swiss) multi-spindle hydro-copying-milling machine, can mill 8 turbine blades simultaneously from forgings or square bar stock, finish grinding operations often unnecessary.

**Other Products:** Bechler Swiss automatics, Deckel universal tool milling and boring machine, Fortuna cylindrical grinder, Frorip vertical boring mill, Kolb jig borer, Pittler turret lathe, Schaefer engine lathe and Schenck crankshaft-balancing machine.

**Hydro-copying miller**

Cosa Corp.



**ARTHUR A. CRAFTS COMPANY, INC.**  
Boston, Mass.

Booth No. 412

**C. C. CRALEY MFG. CO.**  
Shillington, Pa.

Booth No. 514

**Personnel:** John H. Craley, Clyde E. Craley, Paul W. Craley.

**Products:** Craley offset boring heads and tools.

**THE CRO-PLATE COMPANY, INC.**  
Hartford, Conn.

Booth No. 1326

**CRUCIBLE STEEL COMPANY OF AMERICA**  
Pittsburgh, Pa.

Booth No. 626

**CRYSTAL LAKE GRINDERS**  
Crystal Lake, Ill.

Booth No. 1427

**Personnel:** Robert H. Kirwin, Blanche W. Kirwin, Harding Morris, John P. Flynn, Paul Burger, John Kirwin.

**Products:** No. 500 model plain grinder; No. 811 universal grinder; No. 1018 universal grinder, cabinet styling.

**CURTA CALCULATOR CO.**  
Chicago, Ill.

Booth No. 2056

**Personnel:** Elmer C. Beutler, Pres.; Russell L. Brown, V.P.; William M. Monahan, Sales Mgr.; J. Frank Jackson, Rep.; Daniel Romer, Salesman.

**New Products:** Summira adding machine, compact, low priced. Direct subtraction, visible total and individual entry dials, simple design, direct finger action, contoured keyboard, all totals to 9,999,999.

**THE CUSHMAN CHUCK CO.**  
Hartford, Conn.

Booth No. 1302

Offset boring head  
C.C. Craley Mfg. Co.



**Personnel:** W. C. Gaw, V.P. Sales; H. E. Sloan, Jr., Pres.; H. E. Sloan, Sr., Chairman of the Board; Linwood Swanson; John Way; J. E. Hathway; Jack Lynch; Herbert Hickey; B. Viets; J. Rutherford; T. Kelly; Fred Fippiner; John Battaline; R. Cherne; A. Collette; E. Blake; H. Valentine; E. G. Boyer; E. G. Boyer, Jr.; A. L. Whittemore.

**New Products:** Valve indexing chuck, ball collet chuck, heavy duty 3-jaw geared scroll chuck for both single spindle and multi-spindle machines, pinch type jaws for holding jet engine rings and discs.



The simplified PYRO Optical is the ideal instrument for direct temperature readings of ANY heated object in your plant. Completely SELF-CONTAINED. PORTABLE. RUGGED. LIGHT WEIGHT (3½ lbs.) and FOOLPROOF. No correction charts, no accessories and no maintenance expenses. Unique design permits temperature determination even on MINUTE SPOTS. Fast MOVING OBJECTS and of the SMALLEST STREAMS. Write for Catalog No. 80

THE PYROMETER INSTRUMENT CO.  
New Plant and Laboratory, Bergenfield 3, N. J.



do you have a  
**TOOL PROBLEM**

Columbus Die-Tool has been solving tooling problems for over 45 years. Expert designers and builders of all types of tools and special machinery. Write us today!

**COLUMBUS DIE-TOOL**  
*and Machine Co.*  
P. O. BOX 750 • COLUMBUS, OHIO

**DAKE ENGINE COMPANY**

Grand Haven, Mich.

Booth No. 1616

**DANLY MACHINE SPECIALTIES, INC.**

Chicago, Ill.

Booth No. 1601

**DAVEY COMPRESSOR COMPANY**

Kent, Ohio

Booth No. 1973

**A. G. DAVIS GAGE & ENGINEERING CO.**

Hazel Park, Mich.

Booth No. 439

**DAZOR MANUFACTURING CORP.**

St. Louis, Mo.

Booth No. 955

**J. ARTHUR DEAKIN & SON**

Jamaica, New York, N.Y.

Booth No. 905

**DEARBORN GAGE COMPANY**

Dearborn, Mich.

Booth No. 133

**A. P. DE SANNO & SON**

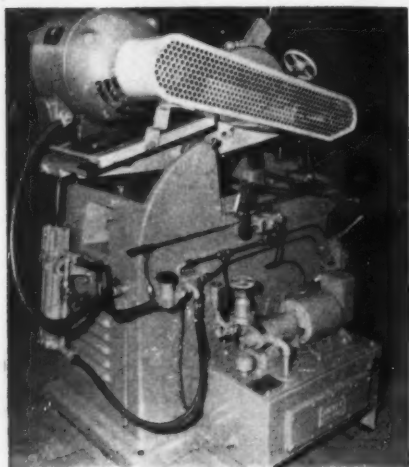
Phoenixville, Pa.

Booth No. 1065

**New Products:** RADIAC type "JH" abrasive cut-off machine which operates on a 10 hp motor and an 18" abrasive wheel for cutting steel up to 3" in dia. RADIAC Type "P" Traveler, for dry cutting. It is a portable abrasive cut-off machine using a 10 hp motor and op-

**RADIAC type "JH" abrasive cut-off machine**

A. P. De Sanno Sons, Inc.



erating an 18" diam. abrasive wheel. Suitable for cutting solid materials up to 2 1/2" dia.

**DELPARK CORPORATION  
INDUSTRIAL FILTRATION CO.**

Lebanon, Ind.

Booth No. 1009

**DENISON ENG. CO.**

Columbus, Ohio

Booth No. 1400

**Products:** Pump and control equipment such as: valve pumps, axial piston pumps, new relief valves, flow controls and indexing tables. Operating pumps and controls will be demonstrated to show precision control.

**Pumps, valves, flow control equipment, and pump motor**

Denison Engineering Co.

**DETROIT HARVESTER CO.**

Pioneer Pump. Div.

Detroit, Mich.

Booth No. 1335

**Personnel:** J. Ralph Griffith, S. M.; Wm. H. Frost, Pur. Agent; H. T. Pittman, Plant Mgr.; J. J. McCarthy; H. Wilson Ryno; H. W. Fuller; Paul W. Goldstrom.

**Products:** Pioneer coolant pumps, Roll-way lubricant pumps, Kleer-Stream oil recovery unit. Tank units, equipped with pump and chip basket, will be available, free of charge, for emergency use, to all exhibitors of machines requiring coolant.

**DETROIT MILLING CUTTER COMPANY**

Farmington, Mich.

Booth No. 1220

**DETROIT POWER SCREWDRIVER CO.**

Detroit, Mich.

Booth No. 1451

**DETROIT REAMER & TOOL COMPANY**

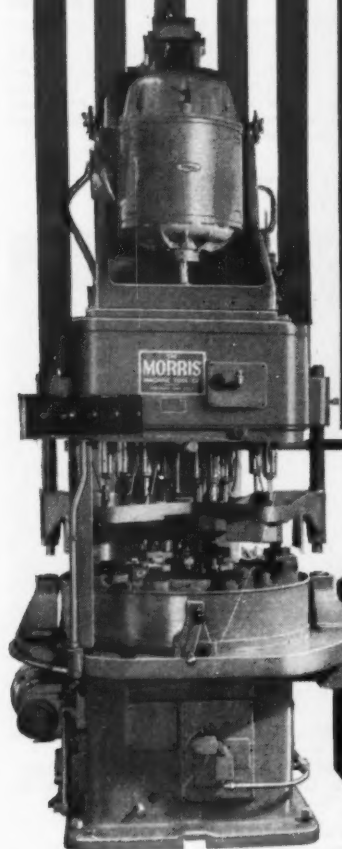
Detroit, Mich.

Booth No. 504

**DETROIT STAMPING COMPANY**

Detroit, Mich.

Booth No. 440



a tough job...  
an easy solution



... another **MORRIS MOR-SPEED**  
production machine

**OPERATIONAL CYCLE:**

- STATION** #1—Load and unload  
#2—Drill two 57/64" holes  
          Drill four 29/32" holes  
#3—Spot face six holes  
#4—Ream (.9062") two holes

Drilling six large holes in armor plate forgings is no cinch, but when you want a finished part every minute and twenty seconds, that's a tough problem. To Morris Engineers, it was a familiar problem... precision drilling on a mass production basis!

The machine furnished was a Mor-Speed Four Station Vertical, using standard units to give "special machine" production and precision at remarkably low cost.

Consider the savings... investment, labor, time and floor space... offered by Morris Mor-Speed Machines.

Precision high production can be yours for less than you might imagine!



*Morris*

**THE MORRIS MACHINE TOOL CO.**  
937 HARRIET ST. CINCINNATI 3, OHIO





**Model ME-1 automatic cut-off machines**  
DeWalt, Inc.

**DEWALT, INC.**  
Lancaster, Pa.

**Booth Nos. 834, 838**

**New Products:** New DeWalt automatic cut-off type for use with either ferrous or non-ferrous metals. It can be equipped with an abrasive wheel for cutting solid, ferrous bar stock and heavy-wall tubing or with a saw blade for cutting light sections of non-ferrous metals and thin-walled tubing. It is designated as the model ME-1 automatic metal-cutter.

**Other Products:** ME-2F foundry machine for cutting of castings; Model ME-6 two-column metal-cutter; and a full line of radial arm type wood and metal cutting machinery.

**DEWITT EQUIPMENT CORP.**  
New York, N.Y.

**Booth No. 1906**

**Personnel:** Donald DeWitt, Burt DeWitt, Herbert Plotnick, Seymour Barnett.

**New Products:** Burnerd "Griptrue" chucks; Burnerd direct mounting chucks; hydraulic chucking equipment for turret lathe.

**Other Products:** Burnerd chucks; Colchester lathes; Moore & Wright precision tools; hydraulic chucking equipment; vises for grinding, milling machine & drill press.

**THE DIE SUPPLY COMPANY**  
Cleveland, Ohio

**Booth No. 1312**

**EUGENE DIETZGEN CO., INC.**  
New York, N.Y.

**Booth No. 1426**



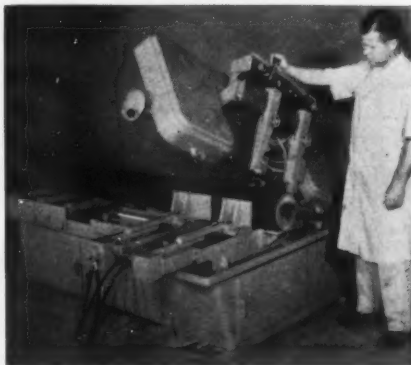
**Burnerd 3-jaw universal chuck**  
DeWitt Equipment Corp.

**THE DOALL CO.**  
Des Plaines, Ill.

**Booth No. 1503**

**Products:** Showing new machining team for cutting material, new line of automatic surface grinders, simplified methods for dimensional control of parts and manufacturing processes. . . . Cutting toughest steels at high rates, grinding to calibrations, gage block assembly are other demonstrations.

**Automatic power saw**  
The DoAll Co.



**DOERR ELEC. CORP.**  
Cedarburg, Wis.

**Booth No. 1955**

**DONOVAN CO.**  
Philadelphia, Pa.

**Booth No. 922**

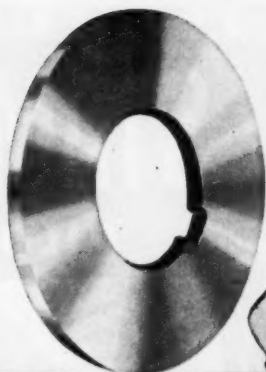
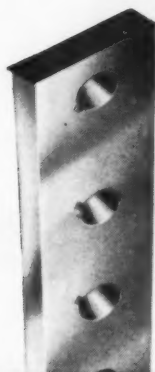
**Personnel:** T. J. Donovan, F. C. Dougherty, S. R. Boyer.

**Products:** Heat treating furnaces in operation. Heat treating will be done in booth. Hardness testers on display.

**THE DOW MECHANICAL CORP.**  
Thompsonville, Conn.

**Booth No. 142**

# they check out **OK**



**OHIO KNIFE SLITTER KNIVES AND SHEAR BLADES**  
are preferred by Metal Working Plants  
and Steel Warehouses—

- |                     |                             |
|---------------------|-----------------------------|
| 1. less<br>downtime | 3. less<br>regrinding       |
| 2. longer<br>runs   | 4. precision<br>performance |

## 4 ways better

**Here's Why**

Ohio Knife Co. slitting and shearing knives earned this reputation primarily by reducing "downtime". Production savings are realized because Ohio Knives give longer runs, require less regrinding and deliver precision work even on the toughest jobs. OK Slitters are made from the finest tool steel, precision ground to  $\pm .0002$  tolerances on thickness, diameter and bore. OK Shear Blades are specially heat treated to bring out best characteristics for different jobs, to give maximum toughness and keen

edge-holding qualities. Our engineering department is at your service for recommendations on your slitting and shearing problems. Write Dept. D.

Manufacturers of OK WELDED HIGH SPEED  
SHEAR BLADES • OK SOLID STEEL SHEAR  
BLADES • OK SLITTER KNIVES • ROTARY  
SHEARS, CUTTERS, CHIPPERS, TRIMMERS

**GO WITH OHIO GREEN**

**THE OHIO KNIFE CO.**

CINCINNATI 23, OHIO

Differential drive unit  
Douglas Tool Co.

**DOUGLAS TOOL CO.**  
Hazel Park, Mich.

Booth No. 956

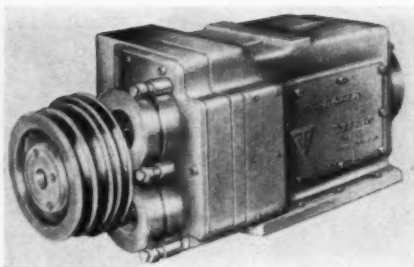
Personnel: R. M. Rein.

**New Products:** Douglas differential drive unit. Gives positive control of cutting tool feed rate at all times.

**Other Products:** Hi-Helix milling cutter.

**DRILLUNIT, INC.**  
Detroit, Mich.

Booth No. 963



# STAMPINGS

## PILOT RUNS



Special methods produce  
small quantities  
at minimum cost.

When you need just a few pieces — when you're still in the experimental stage — then an economical, cooperative source of parts is important.

Our **Machine-Cut Method** avoids custom die costs completely by use of special machinery which skillfully fashions pilot quantities.

Careful calculation determines the point at which labor costs warrant our **Short Run Method**, which uses simple contour dies and special presses.

Best of all, when you get into large quantities on the experimental part, our STAMPINGS Division is still your most economical producer, using our **Production Method**. Thus all three methods are at your disposal. And impartial choice of method *saves money for you!*

**SEND FOR LITERATURE**

**STAMPINGS DIVISION**

"ONE PIECE OR ONE MILLION"



8604 UNION STREET • GLENBROOK, CONNECTICUT

**NOW...** a new addition to the famous **HANSON** processes



## **HANSON-WHITNEY**

### *Internal Thread Comparator for*

## **VISUAL GAGING**

*fast • accurate • economical*

This new Hanson-Whitney Internal Thread Comparator provides fast, accurate, economical, visual gaging of all forms and classes of internal threads in diameters ranging from  $\frac{3}{8}$ " to  $1\frac{1}{2}$ ". Thread segments are quickly interchangeable for inspecting other types, sizes and forms of threads. Accumulated errors of lead and pitch diameter can be analyzed by using the H-W Comparator with special two-thread segments.

Recognized Hanson standards of quality are embodied in the new H-W Internal Thread Comparator. All movable parts are hardened, ground and lapped to precision tolerances—thread segments will outlast several plugs. Exclusive actuating principle insures long-life accuracy.

Your nearest Hanson-Whitney representative will gladly show you how to reduce your gaging costs with the new Hanson-Whitney Internal Thread Comparator.



See this new money saving inspection tool demonstrated at our Booth #414 at the A.S.T.E. Show in April.

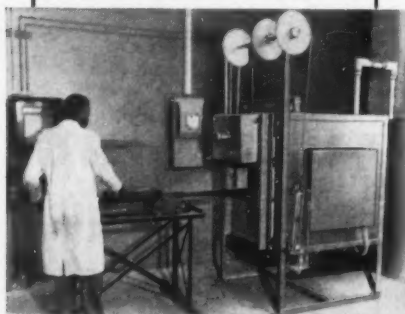
## **HANSON - WHITNEY COMPANY**

Division of Whitney Chain Company, Hartford 2, Connecticut, U. S. A.

**HANSON**  
The Best  
The Complete  
The Accurate  
The Quality  
The Precision Tools  
The Standard Tools  
The Universal Gages

2322

## Even High Speed Steels



— handled with this Full-Range  
General-Purpose Heat-Treating

## PERECO Electric FURNACE

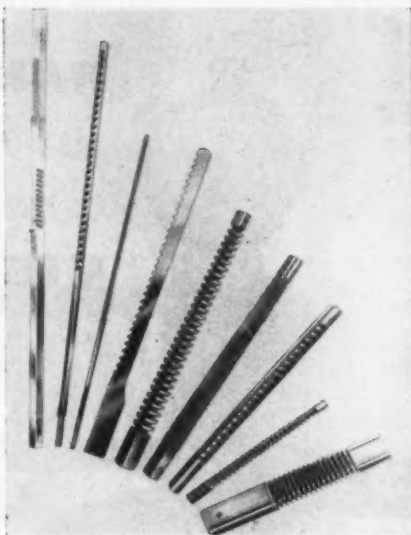


A Pereco Furnace cuts costs in many ways! Saves time—cuts man hours—reduces spoilage—saves on maintenance—insures better results! Why? Because clean electric heat is put under accurate, versatile control—with unmatched specialized equipment design—in a Pereco Furnace. Get the details and compare.

Standard and Special  
Units 450° F. to  
5000° F.

**PERENY**  
Equipment Company  
Dept. Y, 893 Chambers Rd.  
Columbus 12, Ohio

Write  
Today



Special broaches  
The duMont Corp.

**THE duMONT CORP.**  
Greenfield, Mass.

**Booth No. 235**

**Personnel:** John S. duMont, Vice-Pres.; Clinton W. Berry, Chief Engineer.

**New Products:** High speed ground tool bits and special broaches. Bits available in 10 square and 18 rectangular shapes, extra tough. Broaches for precision production limited to those having cutting sections of 20" or less, overall length of 36" or less, and square broaches not smaller than 1/4" across flats.

**THE DUMORE COMPANY**  
Racine, Wis.

**Booth No. 735**

**THE DYNATOMIC CORPORATION**  
Chicago, Ill.

**Booth No. 2021**

**EASTMAN KODAK COMPANY**  
Rochester, N.Y.

**Booth No. 307**

**THE EAST SHORE MACHINE  
PRODUCTS CO.**  
Cleveland, Ohio

**Booth No. 1015**

**EASTERN MACHINE SCREW CORP.**  
New Haven, Conn.

**Booth No. 1642**

**Personnel:** Joseph A. Benson, Exhibit Director; Carl W. Bettcher, Pres.; Gus

# ANNOUNCING THE NEW

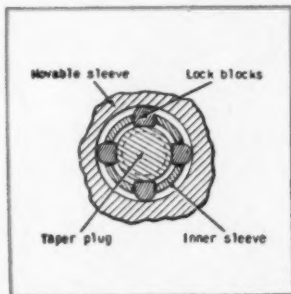
# Logan \*P.R.O. CHUCK

Pat. 2617637

... Introducing a new and unrivaled factor  
for absolute safety never before attained



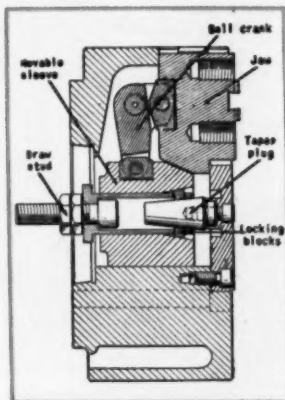
● Don't let this happen to you



The Logan locking feature is provided by the wedging action of these clamping blocks against unequal tapers on a sleeve and a tapered plug.

● Catalog Mailed Promptly On Request

● See It  
Operate  
at the  
A.S.T.E.  
Show  
BOOTH  
1550  
●



Holding force on the Logan chuck jaws is produced by a set of ball cranks actuated by axial motion of a tapered sleeve.



Designed and Manufactured Exclusively By

LOGANSPORT MACHINE CO., INC., 803 CENTER AVE., LOGANSPORT, IND.

LOGAN... FLUID POWER SPECIALISTS SINCE 1916



Mager, Field Engineer; Kenneth Stevens, Field Engineer; Rob't Lawson, Jr., Field Engineer.

**New Products:** Aligning indicator, self-centering tool holders, and threading developments.

**Other Products:** Insert chaser die head with insert chasers where one set of chasers fits many different styles and sizes of die heads; line of die heads for Brown & Sharpe automatics that includes an alignment feature, die heads of the receding type for taper threads, and die heads for difficult chucking jobs, threading fittings, forgings, castings, etc.



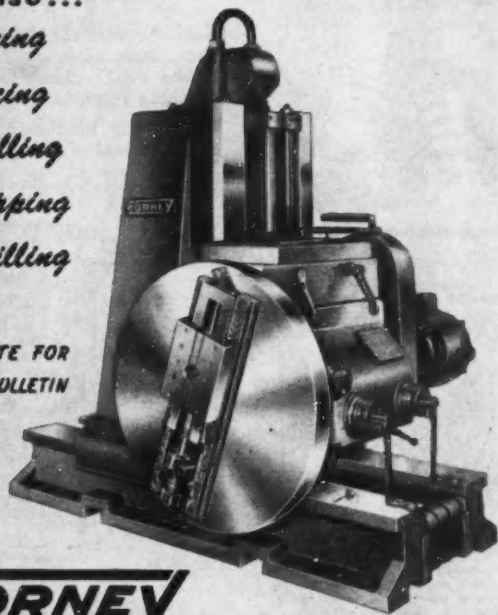
**Aligning Indicator**  
Eastern Machine Screw Corp.

## **66" Diameter Facing Capacity**

also ...

- *Boring*
- *Facing*
- *Milling*
- *Tapping*
- *Drilling*

WRITE FOR  
NEW BULLETIN



# **FORNEY ...**

## **BORING & FACING MACHINE**

### **FORNEY'S INC.**

201 ELM STREET

NEW CASTLE, PENNA.

For Every Carbide Drilling Application  
There's a STANDARD SUPER DRILL

**and really super!**

**Six points of superiority—**  
Result of two years' research.  
Extensive tests indicate it's the  
most durable and the fastest  
cutting carbide twist drill de-  
veloped to date. Feeds as high  
as 8" per minute in cast iron  
have been obtained. Stocked  
in fractional, wire and letter  
sizes for your convenience.

**NEW LOW PRICES**



**QUALITY CARBIDE TOOLS**

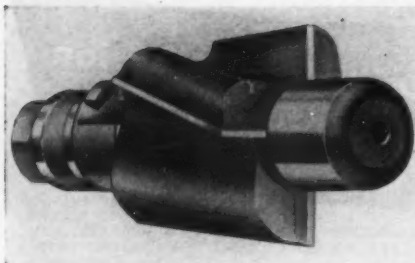
*Super*

**TOOL COMPANY**

21650 Hoover Rd., Detroit 13, Michigan

5210 San Fernando Rd., Los Angeles 3, California

**Visit our Booth No. 623 — A.S.T.E. Show — Philadelphia**



**Improved counterbore**  
Eclipse Counterbore Co.

**ECLIPSE COUNTERBORE CO.**  
Detroit, Mich.

**Booth No. 235**

**Personnel:** R. G. Michell, Pres.; H. R. White, Gen. Mgr.; I. A. Homrich, Factory Mgr.; A. P. Smith, W. R. McClure, W. A. Hassberger, P. A. Ruprich, J. G. Ouellette, A. R. Gloster, M. Leon, Company Executives.

**Products:** New style counterbore (illustrated) with flute form of increased helix angle permitting faster chip removal, thus reducing heat to a minimum in deep counterboring.

**ELASTIC STOP NUT CORPORATION**  
OF AMERICA  
Union, N.J.

**Booth No. 214**

**New superstructure for a large model disintegrator**  
Electro Arc Mfg. Co.



**ELECTRO ARC MFG. CO.**  
Ann Arbor, Mich.

**Booth No. 1434**

**Personnel:** T. J. O'Connor; H. L. Brown; S. H. DeCoste; Clayton DeNault; Gustave Fuerst; William Hadfield; N. H. Koslow; William Ross; Victor Reuter; Edward Rutherford; William Rutherford; John Stevenson.

**New Products:** Electro Arc will show a new superstructure for the largest model disintegrator. Also, standard Model 2-SA which will permit use of the disintegrator on 110, 220, or 440 volt current supply. A small hand demagnetizer and etcher will also be shown.

**Other Products:** Our complete line of Electro metal disintegrators.

**ELGIN NATIONAL WATCH CO.**  
Elgin, Ill.

**Booth No. 415**

**ELOX CORP.**  
Clawson, Mich.

**Booth No. 1342**

**Personnel:** Engineering and sales staff.  
**New Products:** The Elox process of electrical discharge machining applied to a grinder. The grinder uses a brass wheel to replace conventional wheel for grinding any metal.

**Other Products:** The Elox M-400 precision electrical discharge machine; for machining the hard and difficult to machine metals, such as tungsten carbide, stainless steel, titanium, etc.; the Elox M-300 ElectronDrill for salvage of jigs, fixtures, dies, etc., and for removal of broken taps, drills, reamers, setscrews, etc.

**ENCO MANUFACTURING COMPANY**  
Chicago, Ill.

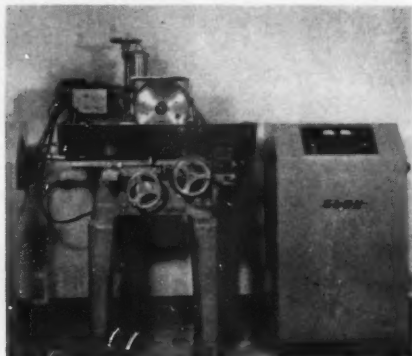
**Booth No. 527**

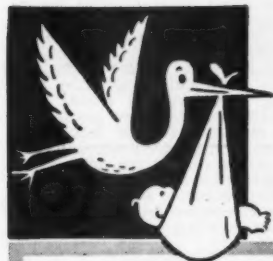
**ENGIS EQUIPMENT CO.**  
Chicago, Ill.

**Booth No. 124**

**New Products:** (1) matrix screen reading dividing head (illustrated) being

**Electrical discharge machining**  
Elox Corp.





# IT'S NEW, IT'S HERE

## A NEW BABY AT MARSHALL STEEL

**IT'S LOW CARBON GROUND FLAT STOCK**

# MARSHALL CRAT

**ARISTOCRAT OF LOW CARBON GROUND FLAT STOCK**

Compared to TOOL STEEL ground flat stock it gives up to

## 60% SAVINGS in Steel Costs!

Use it for Jigs, Fixtures, Patterns, Machine Parts or other pieces that require nothing more than case hardening.

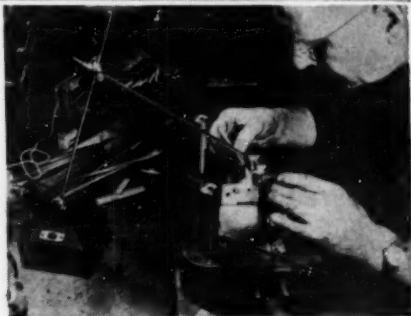
*An ideal material.*

- IT IS EASY TO MACHINE
- GRINDS TO A GOOD FINISH
- TAKES A GOOD CASE
- HAS EXCELLENT WELDABILITY
- OVER 190 Standard sizes in stock

We stock over a million pounds of steel. Twenty thicknesses up to 6 inches, 25" wide and 98" long. Modern Shear and flame cutting, including sketches.

Also a bar, strip and plate grinding service. New up-to-date facilities including most advanced grinding equipment. It will pay you to investigate.

*Write for latest catalogs & prices*



# MARSHALL STEEL CO.

Producers of "ARISTOCRAT" line of TOOL STEEL GROUND FLAT STOCK

P. O. BOX 108-H

LA GRANGE, ILLINOIS

# FLEXIBILITY

FOR A WIDE RANGE OF JOBS

## THE JOHNSON 706 HARDENING, TEMPERING and ANNEALING FURNACE



Select any temperature you require from 300° to 1875° F. Get clean, uniform heat at low cost. The Johnson 706 is easily regulated. Six direct jet burners have separate valves and pilot lights. Firebox 7 x 13 x 16½ lined with high temperature refractory. Counterbalanced door opens upwards.

No. 706 Pedestal (illustrated)	\$300.00
No. 706 Bench	\$275.00
No. 654 with 5 x 7¼ x 13½ firebox:	
Pedestal	\$163.00
Bench	\$138.00

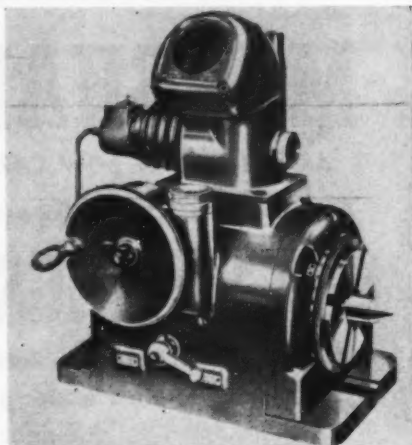
All Prices F.O.B. Factory. Order Now!

JOHNSON GAS APPLIANCE CO.  
570 E AVE. N.W., CEDAR RAPIDS, IA.

**JOHNSON**  
FURNACES FOR INDUSTRY

shown as sectional model; unit reads directly on shielded screen to 12 sec. of arc, with convenient estimation to 3 sec.; operation fast; can be used for production in grinding and milling, or inspection; (2) Abwood automatic circular dividing machine; (3) scales and projection units for machine tools; (4) Talymin III electronic gage head; (5) Talyrond measuring instrument for roundness of parts; (6) matrix drill point measuring instrument of range under ¼"; (7) Taylor-Hobson sweep optical square for determining true flatness of surface without leveling; (8) optical tooling accessories, etc.

Dividing head  
Engis Equip. Co.



ERCONA CORP. (Zeiss Agency)  
New York, N. Y.

Booth No. 131

Personnel: H. Berman; B. Friedman;  
Charles H. Frank, Jr.; D. M. Harris;  
H. Jaffe.

**New Products:** Carl Zeiss Jena large toolmakers microscope in inch system for optical inspection and measurement of gages, templates, form tools and milling cutters, punches and dies, and all types of thread and angular measurements; small optical dividing head 100 reading to one minute of arc, angular range 0-360°, spindle tilting range -20° to +110°, height of centers 4 in., 100 mm., weight 39½ lb.

**Other Products:** Carl Zeiss Jena indicating micrometer, Passameter, Orthotest, measuring magnifier, optical flats, installation microscope, shop measuring microscope, large toolmakers microscope, Abbe Metroscope, Optimeter, optical universal bevel, optical protractor level with microscope, Schnaitz surface finish tester, optical dividing head, small optical dividing head 100.

# MCCROSKY

1904-1954

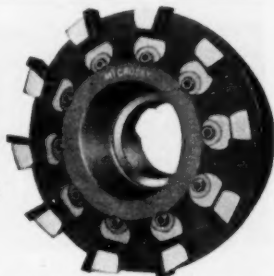
COST  
CUTTING  
TOOLS

50TH ANNIVERSARY

## *Super-Jack\** UNIVERSAL MILLING CUTTERS

*Just One Body for* ... Cast Alloy or Carbide Tips

Right Hand or Left Hand Rotation  
Positive or Negative Angles



Bodies can be bladed for either right or left hand rotation. Blade shanks are locked rigidly on radial center. Consequently, simply selecting blades having tips of the proper material, mounted at the proper angle for cast iron, steel or aluminum, produces a cutter that exactly meets any material and machine requirement. Blades are easily adjusted for regrinding . . . and can be

\* U. S. Pat. 2,547,789. Other Patents Pending

changed quickly for different work conditions.

Shell End and Face Mills in a wide range of standard sizes. Design permits building specially engineered cutters having up to 4 times as many blades as the cutter diameter. — particularly effective for finishing cuts and fine pitch higher speed; faster feed milling with carbide. Write today for Bulletin No. 531. It gives full details.

### MCCROSKY *Jack-Lock*<sup>®</sup> MILLING CUTTERS

Complete line, fitted with high speed steel, cast alloy or carbide tipped blades. Sizes from 3" to 24" to meet any requirement. Write for Bul. 17-M.



### MCCROSKY *Block Type* BORING BARS

Individually ground, tapered V-key centers the block and cutting blades accurately and rigidly yet permits easy release for regrinding. Write for Bul. 17-8.



### MCCROSKY *Super*<sup>®</sup> *Adjustable* REAMERS

Chucking reamers with straight or tapered shanks, also shell reamers with tapered holes or large straight holes. Standard sizes from 15/16" to 6" in diameter. Write for Bulletin 18-R today.



### MCCROSKY *Turret* TOOL POSTS

These tool posts permit tools to be swung into position quickly, indexed accurately, and locked rigidly. Four styles—11 sizes. Write for Bul. 17-T.



### MCCROSKY *Wizard*<sup>®</sup> QUICK-CHANGE CHUCKS

McCrosky's Wizard Quick-Change Chuck and Collet outfits hold tools centered and rigid. They enable the operator to change tools without stopping or slowing down the spindle. Write for Bulletin 18-C today.



### MCCROSKY *Multiple Operation* TOOLS

McCrosky "Specials" combine two or more boring, facing, chamfering or reaming operations into a single tool, cutting set-up time and costs. Write for Bulletin 17-S today.



# MCCROSKY

TOOL  
CORPORATION  
MEADVILLE, PA.

Engineering and Sales Representatives in the Principal Cities



# NEWEST OF THE U. S.-BURKE SUPER-VALUE MACHINE TOOLS

THE ECONOMICAL ANSWER  
TO ACCURATE, VERSATILE  
VERTICAL and ANGULAR MILLING

## "U. S." VERTICAL Milling Machine

Created by America's foremost producers of small milling machines, to fill the big need for a balanced-head vertical miller that provides greater capacity and flexibility than is normally associated with machines of its type.

The new U. S. Vertical ideally combines most advanced engineering, experience of practical machinists and modern design without sacrifice of basic characteristic "U. S." simplicity.

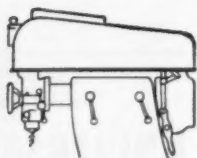
### COSTS SURPRISINGLY LITTLE

Quickly pays for itself by simplifying or taking over vertical milling and boring jobs which often tie up far more costly standard machines.

### SEND FOR COMPLETE DETAILS

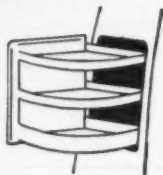
Illustrated literature which describes complete specifications, capacities, exclusive features and advantages gladly furnished on request.

**U. S. BURKE**  
MACHINE TOOL DIV.



Balancing of head and motor and very substantial column provide increased rigidity and accuracy.

Another feature is the built-in spot light which assures maximum visibility at most vital points.



Swing-out shelves handily house tools right in the column of the machine.

Thoroughly tested on the job by many of America's foremost manufacturers.

Brotherton  
Rd. 1  
Cincinnati 27,  
Ohio

# RUSNOK

## MILL HEADS

### 1/4 H. P. CONVERTICAL MILL HEAD

Only low cost mill head with quill travel attachment.  
High speed medium-light operation.  
For bench, floor and pedestal mills.  
Fits milling machines with overarm 1 1/2" to 3".  
3/4" end mill capacity.

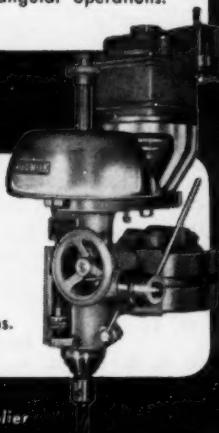


### 1/2 H. P. MILL HEAD

HEAVY DUTY MILLING ATTACHMENT  
Fits milling machines with 3" to 5" overarm.  
3/4" end mill capacity.  
For vertical, horizontal and angular operations.

### 1 H. P. MILL HEAD

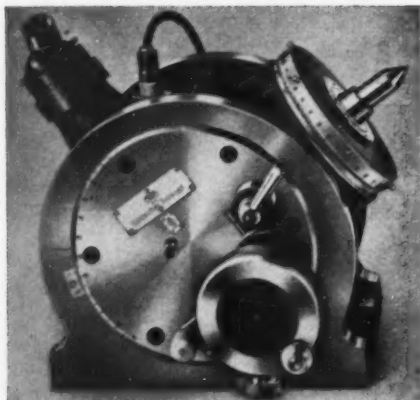
HEAVY DUTY MILLING ATTACHMENT  
Fits milling machines with 3" to 5" overarm.  
3/4" end mill capacity.  
For vertical, horizontal and angular operations.



WRITE for complete details and give name of your supplier

# RUSNOK

RUSNOK TOOL WORKS, 4840 W. North Ave., Chicago 39, Ill.  
**MILLING • DRILLING • BORING**



**Optical dividing head**  
Ercona Corp.

**ERICKSON TOOL CO.**  
Cleveland, Ohio

**Booth No. 505**

**New Products:** New line of self-releasing tap holders covering range required for standard hand taps up to and including 2" and pipe taps up to 1 3/4". One type, permitting a 1/32" adjustment of parallel alignment, is specifically designed for turret lathes. One, designed for automatics, is self-releasing without adjusting flange. A third type incorporates the floating feature and corrects for parallel and angular misalignment. A new speed indexer features integral shock control preventing overriding, wear or damage; air or hydraulic actuated.

**ERRINGTON MECHANICAL LAB., INC.**  
Staten Island, N. Y.

**Booth No. 645**

**Personnel:** William S. Errington, Pres.; Stanley A. Errington, V.P.; Gustav Tingberg, Eng.; John Hoffman, Morris Richter, Earl Hindes, Sales Reps.

**New Products:** Universal joint tapping heads.

**Other Products:** Multiple drill heads and multiple tapping heads and tapping attachments.

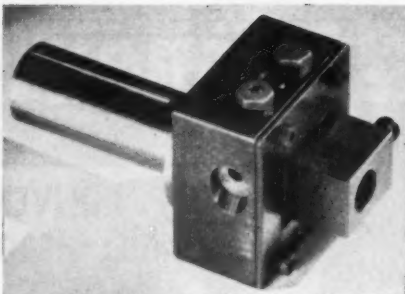
**EVEREDE TOOL CO.**  
Chicago 39, Ill.

**Booth No. 915**

**Personnel:** E. R. Glenn; A. J. Proksa; C. Hycner.

**New Products:** No. 1-50 offset boring head for use in automatic screw machines and small turret lathes.

**Other Products:** Boring bars, boring bar holders, carbide turning tool holders, offset boring heads with facing attachment, carbide tool bits, high speed steel tool bits and boring bar quills.



**ETTCO TOOL CO., INC.**  
Brooklyn, N.Y.

**Booth No. 1612**

**EX-CELL-O CORP.**  
Detroit, Mich.

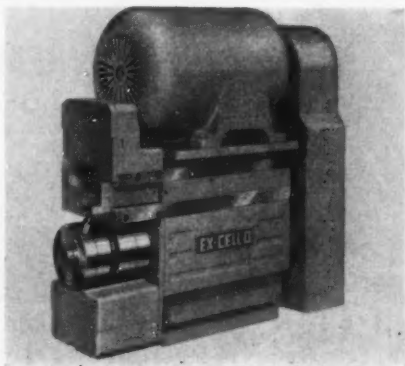
**Booth No. 1526**

**New Products:** Style 22 quill-type hydraulic power unit is self-contained, compact, hydraulically operated, and designed for actuating a single tool or multiple spindle head in easily controlled automatic cycles.

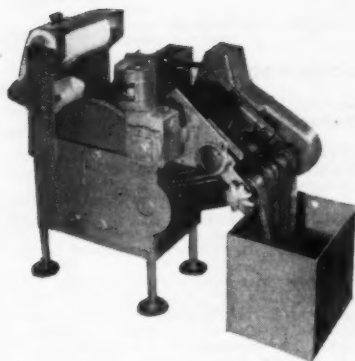
**Other Products:** Seven models of Ex-Cell-O precision grinding spindles; drill jig bushings. Continental Tool Works Div. will show cutting tools (standards, special, broaches); Precision Products Div. will display precision parts and assemblies.

**New style 22 quill type hydraulic power unit**

Ex-Cell-O Corp.



# Remove



- ★ Remove Metallic Sludge and Abrasives
- ★ Economical, Automatic Operation
- ★ Rapid, Double Cleaning Action

## **BOTH**

**MAGNETIC  
NON-MAGNETIC  
PARTICLES!**  
FROM METAL-CUTTING FLUIDS

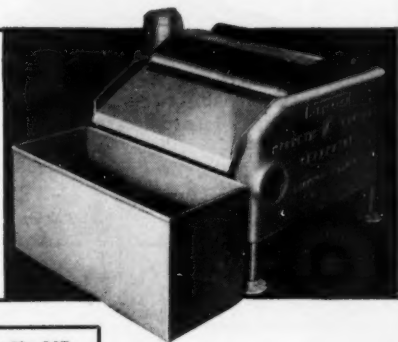
*New*

**BARNESDRIL**  
KLEENAL MAGNETIC FILTER

You can now obtain all the benefits of **BARNESDRIL** Automatic Magnetic Coolant Separation, plus the added efficiency of removing non-ferrous material. Ask your **BARNESDRIL** representative for complete data.

### Cleaner Coolants

Efficient **BARNESDRIL** Automatic Magnetic Coolant Separators sharply reduce machine maintenance and downtime, increase finish quality, and prolong coolant life. New **BARNESDRIL** developments offer even greater improvements in coolant supply and chip disposal. Write for Bulletin B300A



See these separators in operation, Booth 907,  
ASTE Show, April 26-30, Philadelphia, Pa.

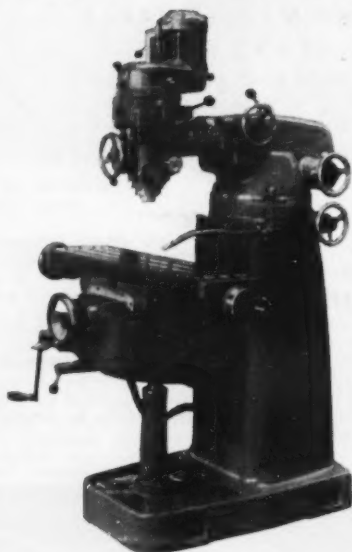


## **BARNES DRILL CO.**

852 CHESTNUT STREET • ROCKFORD, ILLINOIS

# AMERICAN VERTICAL Milling Machine

- Versatile • Accurate
- Rugged • Economical



## General Specifications

Table .....	10"x40"
Longitudinal Travel .....	24"
Overarm Travel .....	10"
Vertical Travel .....	18"
Weight of Machine (approx.) .....	2350 lbs.

**See Our BOOTH**  
**No. 1908 at**  
**Philadelphia ASTE Show**  
**April 26-30**

## AMERICAN MILLING MACHINE, INC.

3138 E. Olympic Blvd.  
Los Angeles 23, Calif.



**T. I. drive counterbore**  
Falcon Tool Co.

### FALCON TOOL CO.

**Booth No. 441**

Detroit, Mich.

**Products:** T. I. drive counterbore.

### FAWICK AIRFLEX DIV., FEDERAL FAWICK CORP.

Cleveland 11, Ohio

**Booth No. 1346**

**Personnel:** John V. Eakin, Gen. Mgr.; Clement Reeves; T. E. Metz; E. J. Montalvo; J. N. Kelleher; Raymond E. Mack, Jr.

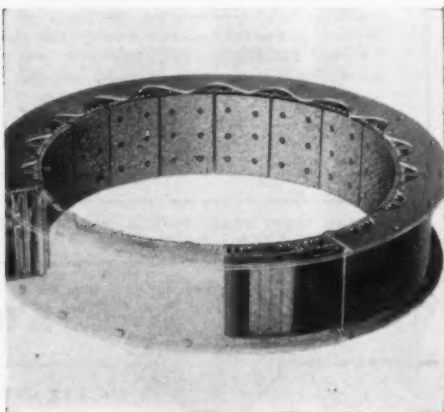
**Products:** Air-operated clutches, brakes, rotor seals and quick release valves. Features of the display will be an actual demonstration of a Fawick clutch and brake in operation. Another feature will be the new Fawick Type VC Air-Ring clutch.

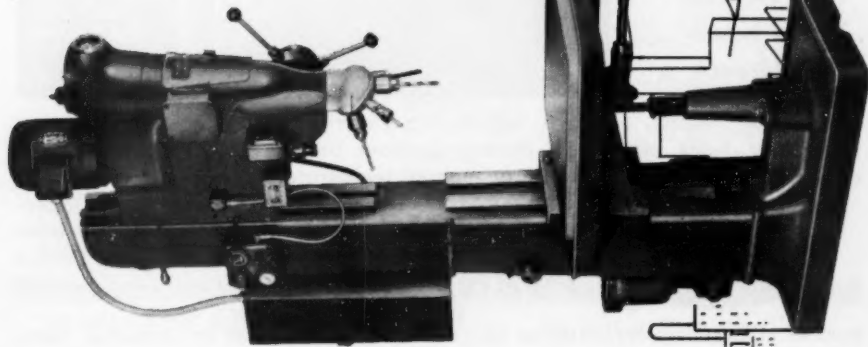
### FEDERAL PRODUCTS CORP.

Providence, R. I.

**Booth No. 315-321**

**Personnel:** I. A. Hunt, Sales Pro. and Adv. Mgr.; Fred C. Tanner, Pres.; L. B. Colt, Sales Mgr.; Thomas Johnson, Mgr. Research; Herbert Joslin, Mgr. Mfg.; Louis Heindol, Mgr. Air Gage Sales; Allen Souler, Sales Eng.; Bill Clark, Sales Eng.; Murray Scott, Sales Eng.; Morgan Sartwell, Electronic Eng.; Ted Laffey, District Mgr.; James Gunderson, Fawick type VC air-ring ventilator clutch Fawick Airflex Div., Federal Fawick Corp.





April, 1954

# *announcing a new type*

## OF MACHINE TOOL

### THE HOWE & FANT TURRET DRILLING MACHINE

The HOWE & FANT Turret Drilling Machine is a revolutionary development that does for drilling what the modern turret lathe does for turning.

**FASTER.** One operator performs up to six different drilling and tapping operations, in any sequence, at a single station. No time is lost moving work from one station to another. Speeds, depths, and reversals for tapping are all pre-set, and require no attention during successive operating cycles.

**MORE VERSATILE.** Speed of each spindle is independently determined, and is infinitely variable from 200 to 4000 rpm. Depth stops are individually set for each spindle, and are accurate to less than 0.002 inch. For tapping, automatic reverse at twice forward speed is available at each spindle.

**LOWER COST.** All this is yours in a half-inch capacity machine that takes only 34 by 50 inches of floor space . . . at a basic cost of \$2950.

**HOWE & FANT, INC.**

29 Fitch Street, East Norwalk, Conn.

*See It In Operation at Booth 1967*

A.S.T.E. Industrial Exposition, Philadelphia, April 26-30

Or Write for Bulletin 5403



District Mgr.; Fred Hunter, Manufacturer's Agent; Frank Pardee, Sales Eng.; Louis Donnoci, Maintenance.

**New Products:** Shallow diameter gage (Model 88P-10), hole location and concentricity gage (Model 205), crankshaft gage, "O-ring" gage, gear gage, Dimensionair (air gage) with 5,000 to 1 magnification, Arnoldair attachment (air gaging applied to cylindrical grinding), AirProbe (a calibrated universal measuring attachment for Dimensionair), Splash-Proof dial indicator.

**Other Products:** Dial indicators, indicating gages of all types, air gages, automatic sorting gages, automatic machine control gages, continuous measuring gages, electronic comparators, electric gages, and electric grinding gages.

**FEDERAL TOOL AND MANUFACTURING CO.**  
Minneapolis, Minn.

Booth No. 2014

**FENWAY MACHINE SALES CO., INC.**  
Philadelphia, Pa.

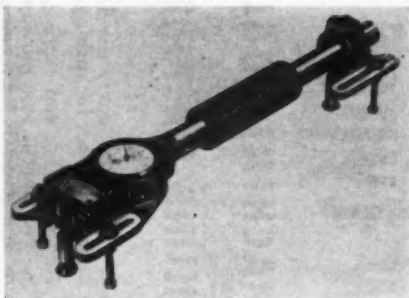
Booth No. 2013

**FERGUSON MACHINE AND TOOL CO.**  
St. Louis, Mo.

Booth No. 1842

**FIDELITY TOOL SUPPLY**  
Camden, N.J.

Booth No. 1742



Shallow diameter gage  
Federal Products Corp.

**FIRTH STERLING INC.**  
Pittsburgh, Pa.

Booth No. 120

**FLOAT-LOCK SALES DEPARTMENT  
AMERICAN MACHINE & FOUNDRY  
COMPANY**  
New York, N.Y.

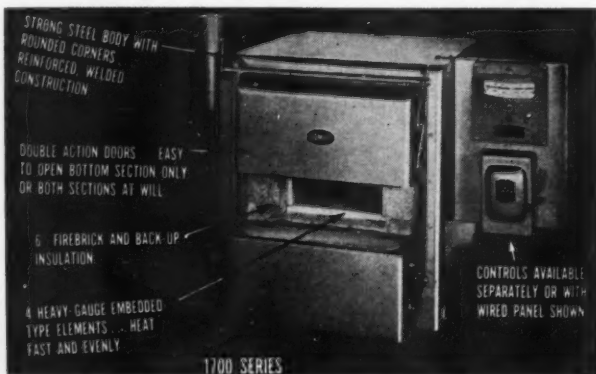
Booth Nos. 834 & 835

**FOUNDRY MAGAZINE**  
Cleveland, Ohio

Booth No. 1217

## solve heat-treat problems

with versatile  
Temco bench-  
type furnace



Step up production, cut costs with Temco electric furnaces for heat treating dies, parts, tools, etc. Model illustrated above one of eight convenient sizes available with either electronic or manual temperature controls. Economical,



## ELECTRIC FURNACES

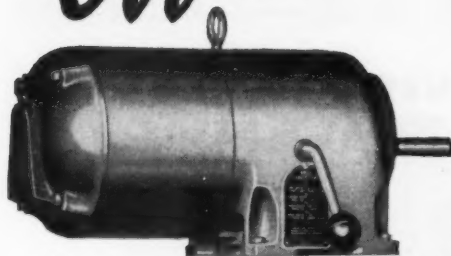
THERMO ELECTRIC MANUFACTURING CO.

easy to install and operate, low cost. Priced from \$55.00 to \$507.50. Write for literature and nearest dealer's name.

486 HUFF ST., DUBUQUE, IOWA

# LIMA GEARSHIFT DRIVES

## Offer



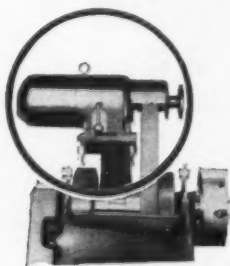
- ★ INCREASED PRODUCTION
- ★ GREATER MACHINE FLEXIBILITY
- ★ LOWER OPERATING COSTS

If you want to *increase* production and *reduce* operating costs—eliminate obsolete overhead lineshafting!

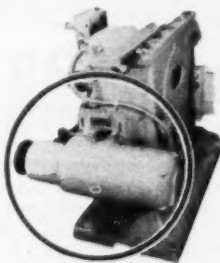
LIMA GEARSHIFT DRIVES have been designed to individually motorize all types of machine tools and production equipment — economically.

Why not let our experienced Sales Engineering Staff help solve your motorizing problems—an accurate survey of your requirements involves no obligation.

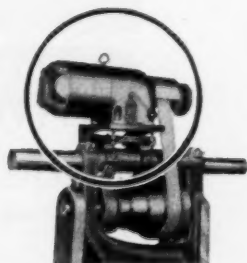
Write today for complete information.



LATHE



SHAPER



MILLING MACHINE

# LIMA

Coast To Coast Representation  
GEARSHIFT DRIVES & MOTORS

THE LIMA ELECTRIC MOTOR COMPANY



271 Findlay Road, Lima, Ohio

Spade drills  
Gairing Tool Co.

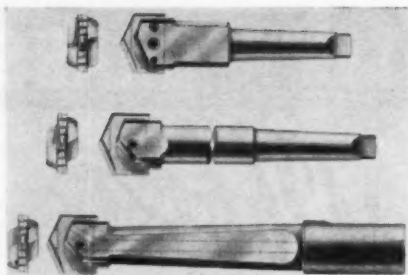
**THE GAIRING TOOL CO.**  
Detroit, Mich.

Booth No. 225

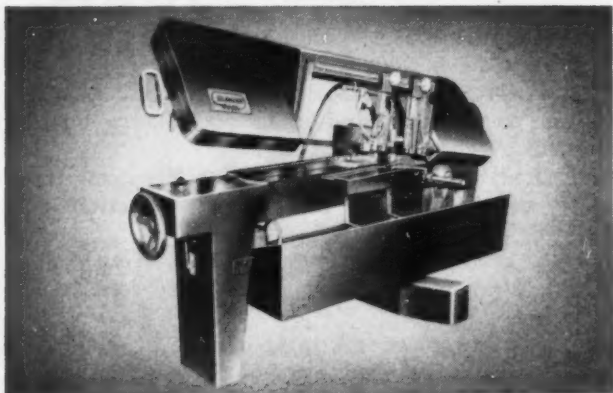
**Personnel:** E. Bomb; B. O'Meara; D. G. Haworth; W. B. McClellan; L. R. Montgomery; A. Saul; H. Tuscher; J. Miller; C. Krueger; F. Goddard.

**New Products:** The complete line of Conner type spade drills, core drills and deep hole drills.

**Other Products:** The complete line of Gairing standard and special cutting tools and cutting tool holders.



## FIRST 8-INCH METAL CUTTING SAW TO MEET TODAY'S NEEDS



**KALAMAZOO**

Kalamazoo Metal Cutting Band Saw Machines:

**KALAMATIC BAR FEED**  
for Kalamazoo.

**MODEL 1220** cuts 12" round, 20" flat.

**MODEL 610** cuts 6" round, 10" flat.

### MODEL 8C

**cuts 8" round, 16" flat, 8" pipe**

Instant-acting vise holds work-piece. Four speeds for best cutting. Accuracy easily controlled—blade action in cut easy to see. Blades changed in seconds. Automatic shut-off. All parts readily accessible. Ask your Kalamazoo dealer to demonstrate Model 8C.

See us at Booth 1734, ASTE Convention

MACHINE TOOL DIVISION

**Kalamazoo TANK and SILO CO.**

432 HARRISON ST., KALAMAZOO, MICHIGAN

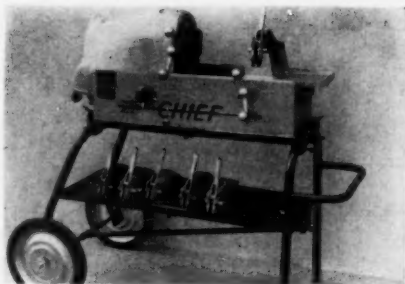
Pipe, bolt and conduit threader with  
automatic chuck  
Gaines-Collins Co.

**GAINES-COLLINS CO.**  
Los Angeles 32, Calif.

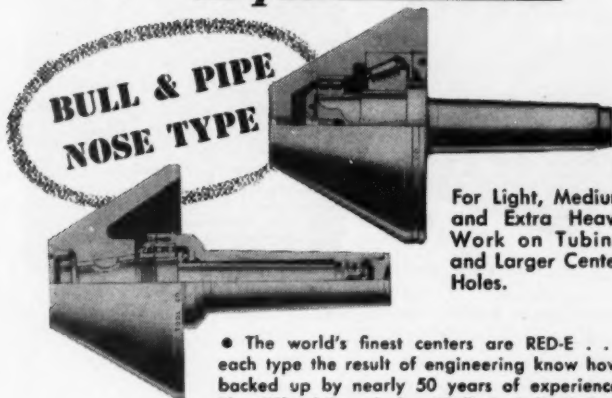
**Booth No. 1816**

**Personnel:** Robert H. Collins, Exec.  
V-P.; Louis Marcil; Jack Nathan; Ben  
Van Rensler.

**New Products:** Pipe, bolt, and conduit  
threader with patented automatic  
chuck;; pipe, bolt, and conduit threader  
with a capacity of  $\frac{1}{2}$ " to 4"; pipe, con-  
duit, and tube cutter; from aircraft  
aluminum; special purpose electric mo-  
tors; coolant pumps.



# only RED-**E** Anti-Friction **CENTERS** are Superaccurate!



For Light, Medium  
and Extra Heavy  
Work on Tubing  
and Larger Center  
Holes.

• The world's finest centers are RED-E . . .  
each type the result of engineering know how,  
backed up by nearly 50 years of experience.  
The "Shank" and the "Ball & Roller" Type  
centers illustrated are just a few of over 200  
exclusively designed centers available.

Ask for Catalog "B" (Pipe and Bull Nose  
Centers). "C" (Anti-Friction Centers). "D"  
(High Speed—Carbide Tipped Centers).



CENTER Specialists Since 1908

**RED-E TOOLS**  
**READY TOOL COMPANY**

530-B Iranistan Ave.

Bridgeport 5, Conn.

**GALLAND-HENNING MFG. COMPANY**  
Milwaukee, Wis.

Booth No. 817

**THE GAMMONS-HOAGLUND CO.**  
Manchester, Conn.

Booth No. 801

**Personnel:** M. B. Gammons; C. W. Keeney; C. A. Hoaglund.

**Products:** Gammons helical taper pin reamers, die makers reamers, helical chucking reamers, welders reamers, helical special reamers.

**GENERAL ROTO CO.**  
Los Angeles, Calif.

Booth No. 2156

**GENEVA MACHINE & TOOL CORPORATION**  
Tampa, Fla.

Booth No. 243

**GIDDINGS & LEWIS MACHINE TOOL CO.**

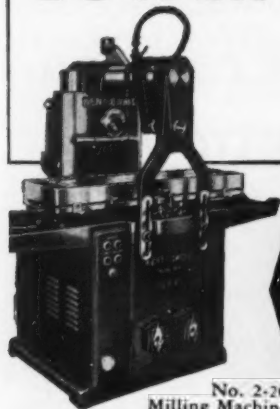
(Davis Boring Tool Div.)  
Fond du Lac, Wis.

Booth No. 1500

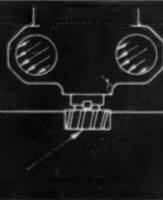
**Personnel:** Erwin J. Kaiser, Mgr., Milton J. Kuhn, Harold L. Johnson, T. R. Sullivan, Vernon E. Unger, Harvey R. Plummer, Johnson Sandberg, Allan Eggers, Ross T. Beirne.

**New Products:** Davis adjustable draw key to positively lock tool shanks in

## LOWER MILLING COSTS!



No. 2-20  
Milling Machine  
Table, 42" x 12"  
Table travel, 20"



**TWIN POST MOUNTING.** Head mounted on two cylindrical ground steel posts which carry spindle midway between them — extra rigidity — an exclusive Kent-Owens feature!

Kent-Owens builds 'em rugged . . . simple . . . and versatile . . . machines adaptable to countless milling jobs. Designed for rapid, easy set-up and cost-saving operation. Extra rigid head mounting assures balanced load. Greater cutting efficiency with smooth, powerful cutter drive—only two gear contacts, motor to cutter. Write for bulletins on wide range of hydraulic and hand-operated machines. Kent-Owens Machines Co., Toledo, Ohio.

# KENT-OWENS

*Milling Machines*



Get Prices  
and details from  
**CIRCLE R**  
**SPECIALISTS IN . . .**

METAL SLITTING SAWS  
COPPER SLITTING SAWS  
SCREW SLOTTING SAWS  
COMMUTATOR SLOTTING SAWS  
JEWELER'S SLOTTING SAWS  
TUBE CUT OFF SAWS  
SLITTING DISCS • SOLID &  
TIPPED TUNGSTEN CARBIDE  
SAWS • COMBINED DRILLS  
COUNTERSINKS & CENTER  
REAMERS

**do jobs too tough for HSS,  
not tough enough for Carbide**

### New CIRCOLOY Combines Advantages of other steels in general use

Fills the performance gap between carbide and high speed steels — lets you restrict use of carbide and HSS to uses they serve best.

Suited for tougher work but can be used for regular cutting jobs — because it outlasts HSS.

Longer life, longer production runs, superior cutting, does operations efficiently that HSS cannot handle satisfactorily.

Unlike carbide, needs no special handling — can be reground on any standard grinding apparatus.

New to market, but proved efficient and economical in production tests for over 1 year in plants all around the country.

Circoloy metal cutting saws, thickness  $\frac{1}{8}$ " to  $\frac{1}{4}$ ", now offered in same line as our regular HSS circular cutting tools.

Developed through 30 years of experience producing the best available tools of high speed steel, solid tungsten carbide, carbide tipped.

• BURBANK			
CHICAGO	DETROIT	MONTREAL	PITTSBURGH
CLEVELAND	GREENVILLE	NEW YORK CITY	PROVIDENCE
DALLAS	INDIANAPOLIS	PHILADELPHIA	ROCHESTER
DAYTON	KANSAS CITY	PHOENIX	ST. LOUIS

**PROVIDENCE 5, RHODE ISLAND**





machine spindle; 8 position tool holder for vertical boring mills; expansion type boring head with a range from 10 to 50 inches.

**Other Products:** Stub boring tool sets; boring blocks with expansible cutters; boring heads; general purpose boring tools; line boring bars; stub boring bars; super micrometer flycutter tools; car wheel boring tools.

**EDWARD R. GLENN CO.**  
Philadelphia 26, Pa.

**Booth No. 919**

**Personnel:** Edward R. Glenn, Charles A. Slemmer; Theodore E. Morrison; Fritz H. Ahlfeld.

**New Products:** Acra-ment indicating comparators, Meyer Corps., Cranston, R. I.

**Other Products:** Jig, fixtures and die supplies; indicating gages; tools.

**THE GOVRO-NELSON CO.**  
Detroit, Mich.

**Booth No. 808**

**Personnel:** O. R. Aronson, Pres.; M. H. Huth, Sales Mgr.

**Products:** Automatic drilling and tapping units.

**GODDARD & GODDARD CO.**  
Detroit, Mich.

**Booth No. 1109**

**GRAYMILLS CORP.**  
Chicago, Ill.

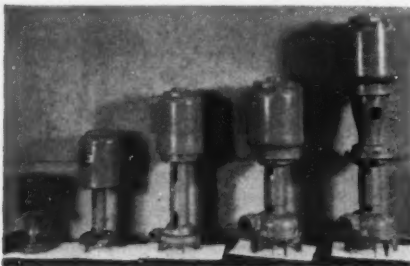
**Booth No. 526**

**Personnel:** Raymond Hollis; Earl E. Scheibe; O. E. Marthinson; Edw. Marthinson; H. R. Hartley; W. R. Tobey; Fred Cox; J. P. O'Connor; Wendell J. Brown; Robert Renner; R. L. McCollom.

**New Products:** Coolant feed system for multidrill head, compact, abrasive-proof centrifugal coolant pumps.

**Other Products:** Coolant pumps, gear and cent.; cold solvent type metal cleaning machines; tool room parts cleaner; stock lubricating unit for metal stamping & forming; circulating pump units.

**Coolant pumps**  
Graymills Corp.



**GRAHAM MACHINE TOOL CO.**  
New York, N. Y.

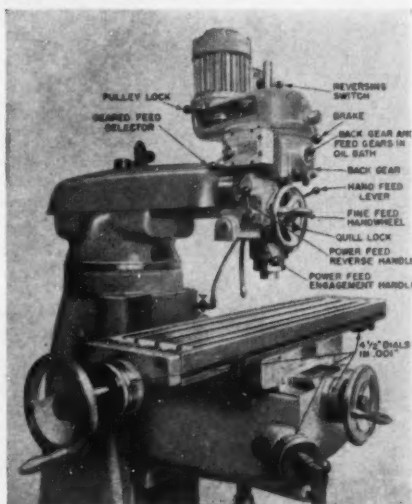
**Booth No. 1851**

**Personnel:** Joseph Dunn, Eugene Hohloch, Marshall Novick, Edith Dunn.

**New Products:** Turret type milling machine.

**Other Products:** Universal milling machines, lathe, turret lathe, grinders.

**Turret type milling machine**  
Graham Machine Tool Co.

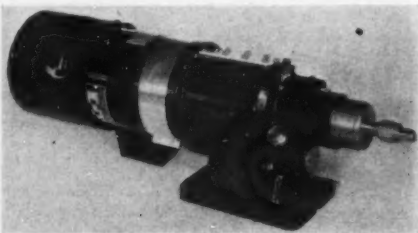


**GRAND TOOL & SUPPLY CO.**  
New York, N. Y.

**Booth No. 1913**

**Products:** Complete line of arbors and adapters in 30, 40, 50 tapers as well as 7, 9, 10 and 11 Brown & Sharpe tapers. The line includes 181 sizes and styles of

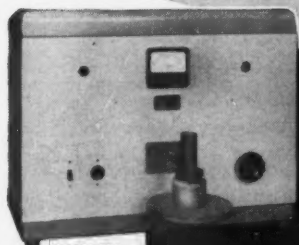
**Drilling, tapping units**  
Govro-Nelson Co.



# Lepel's

# 3 new

## LOW COST - PORTABLE HIGH FREQUENCY *Induction* HEATING UNITS



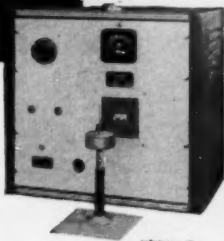
MODEL 3 HW  
Spark Gap Converter  
**\$870.**  
f.o.b. factory

### *Ideal for*

- Production Heating of small parts
- Research Laboratories
- Tool Rooms
- Machine Shops
- Educational Institutions



MODEL T-20-1  
Electronic Tube  
Generator  
**\$1620.**  
f.o.b. factory



MODEL T-1  
Electronic Tube  
Generator  
**\$885.**  
f.o.b. factory

The Lepel line of induction heating units represents the most advanced thought in the field of electronics as well as the most practical and efficient source of heat yet developed for industrial heating. With a background of half a century of pioneering electrical and metallurgical experience, the name Lepel has become the symbol of induction heating equipment embodying the highest standards of engineering achievement, dependable low cost operation and safety.

Amazing in its speed, Lepel equipment reduces the time required for hardening, annealing, stress relieving, brazing, soldering and melting from minutes to seconds. It performs these operations with a degree of precision and uniformity rarely attained through other processes.

**LEPEL Electronic Tube GENERATORS available from 1 kw to 100 kw.**  
**LEPEL Spark Gap CONVERTERS available from 2 kw to 30 kw.**

WRITE FOR THE NEW LEPEL CATALOG . . . 36 illustrated pages  
packed with valuable information on high frequency induction heating.

**BRAZING**  
Permits widest choice of silver or copper brazing alloys from lowest to highest melting points. Ideal for brazing carbide tips.

**HARDENING**  
Heat localized exactly where wanted at desired temperature. Ideal for gears, cams, bearing surfaces, cutting tools and other areas that are subject to wear.

**SOLDERING**  
Speedily and neatly performs intricate soldering applications with or without the use of pre-formed rings.

**ANNEALING**  
Ideal for annealing, stress-relieving, normalizing or pre-heating selected areas.

**MELTING**  
Readily melts quantities of ferrous and non-ferrous metals in either graphite or ceramic crucibles.

All Lepel equipment is certified to comply with the requirements of the Federal Communications Commission.

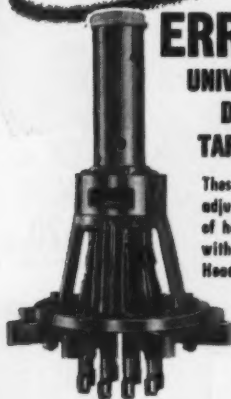
## LEPEL HIGH FREQUENCY LABORATORIES, INC.

55th STREET and 37th AVENUE, WOODSIDE 77, NEW YORK CITY, N. Y.

DO MORE...

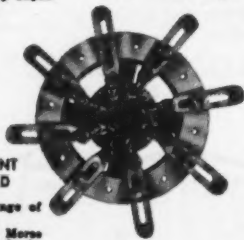
DO IT BETTER

DO IT FASTER



UNIVERSAL JOINT  
TAPPING HEAD

#0-0" to 1/4" Tap Capacity  
4 Spindles.  
#1-7/8" to 1/2" Tap Capacity  
4 Spindles.



UNIVERSAL JOINT  
DRILLING HEAD

#0-0 to 1/4" Full range of  
collets furnished.  
#1-3/16 to 1/2"-#1 Morse  
Taper collet or chucks  
for straight shank drills.

Write For Complete Literature

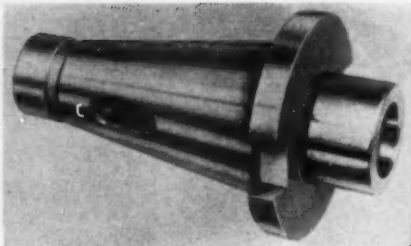
**ERRINGTON Mechanical Laboratory, Inc.**

Established 1891  
Main Office and Plant, STATEN ISLAND, N. Y.

See Us At Booth 645

## ERRINGTON UNIVERSAL JOINT DRILLING & TAPPING HEADS

These dependable tools are adjustable to any pattern of holes... are available with 4 to 12 spindles. Heads made of the best grade sand Cast Aluminum with hardened and ground gears and spindles (made in one piece). Full grooved ball thrust bearings at all thrust points and Oilite bronze radial bearings.



### Adapter

Grand Tool & Supply Co.

milling machine arbors, shell and mill arbors, end mill adapters, shell reamer arbors, collet adapters, chuck adapters, fly cutter arbors, arbor spacers, end shims and reclining bushings, all made of finest alloy steel, hardened and ground to closest tolerances.

**GREEN INSTRUMENT COMPANY, INC.**  
Cambridge, Mass.

Booth No. 2016

**GRIFFITH-RAGUSE & CO., INC.**  
Philadelphia, Pa.

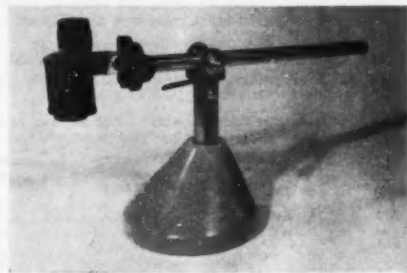
Booth No. 1820

**T. T. GRISWOLD MFG. CO.**  
Wayne, Pa.

Booth No. 407

**Personnel:** R. W. Minnich; F. T. Griswold; G. Rheam.

**New Products:** Griswold-Huet telescope; Griswold OPL centering microscope.  
**Other Products:** OPL dividing head; Huey optical straightedge; reflect align telescopes; scan-a-scale; cam rise gage.



**Griswold-Huey telescope and stand**  
Griswold Mfg. Co.

**GROB INC.**  
Grafton, Wis.

Booth No. 1051

**Personnel:** Benjamin Grob, Herman

# CUSHMAN



**CHUCK-ABILITY:** — The ability to **SPEED** your work . . . **ELIMINATE** fatigue . . . **IMPROVE** your products . . . and **REDUCE** your costs . . . through design and selection of the right work-holding devices

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The ASTE Show  
Booth No. 1302

*Remember—*

You can't machine it right  
unless you hold it right



*an example*

. . . is the Cushman Power Wrench, push-button controlled, for eliminating time-consuming, fatiguing, hand wrenching of chucks on single and multi-spindle machines, especially where repetitive machining operations are being performed.

Cushman Power Wrenches are available with either an 8 or 24 ft. lb. motor, delivering a maximum of 180 and 600 ft. lbs. torque respectively. By adding the Cushman Variable Torque Control, developed especially for use with the Power Wrench, the operator can, simply by setting a selector switch, predetermine any one of 9 stages of torque and inertia control.

With the Cushman Torque Control, Power Wrenches equipped with an 8 ft. stall-type motor will deliver from 45 to 180 ft. lbs. torque, and when using a 24 ft. lb. motor, torque can be varied from 150 to 600 ft. lbs. If greater or less driving force is required, the Cushman Engineering Department can design wrenches to suit your needs. Find out what Chuck-Ability can do for you. Write Cushman for Bulletin No. 211D fully describing and illustrating the Cushman Power Wrench — or, should you have a special work-holding problem, consult Cushman.

## THE CUSHMAN CHUCK COMPANY

Hartford 2, Connecticut, U.S.A.

*Manufacturers of*

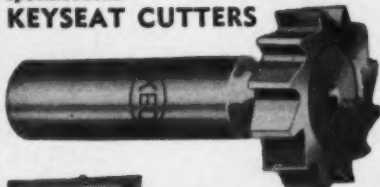


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**KEO****CENTER DRILLS**

Made of finest high speed steel. Available in all standard sizes. Always in stock for immediate delivery. Specials made to your specifications.

**KEYSEAT CUTTERS**

High speed. Right hand  $\frac{1}{2}$ " shank. Diameter from  $\frac{1}{8}$ " to  $1\frac{1}{2}$ ". Standard sizes in stock for immediate delivery. Complete set—41 sizes—available in sturdy, hardwood box. Saves time and money, because you always have the size you need.

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High speed steel. Reamers from  $\frac{1}{4}$ " to 1" regularly furnished with 60°, 82°, 90° included angle. Specials made for your specifications.

**LATHE MANDRELS**

Precision made of tool steel, hardened and accurately ground. Tapered .0005" to the inch. Mandrels from  $\frac{3}{16}$ " to 1" are .0005" undersize at small end, from  $1\frac{1}{4}$ " to 3", .001" undersize. Immediate delivery.

*Write for Literature*

Illustrated literature and prices on all KEO Products mailed on request.

**KEO CUTTERS**

19326 Woodward - Detroit 3 Mich.

**Victor****USE**

unbreakable  
high speed  
blades  
competitively  
priced



For safety, Victor High Speed Flexible Blades are shatterproof. And, like *all* Victor Blades, they are made by exclusive processes, with special machinery, to unequalled quality standards, and remember, no premium price.

Your Victor distributor is the man to call, for Victor Hack Saw Blades and for the other tools and supplies he carries. We have selected him with care — for complete inventories, swift deliveries, helpful service, and quality products.

Sold Only Through Recognized Distributors

**VICTOR**

SAW WORKS, INC. • MIDDLETOWN, N.Y., U.S.A.  
Makers of Hand and Power Hack Saw Blades;  
Frames; Metal & Wood Cutting Band Saw Blades.

Noll, Hans Degelow, Kenneth Janke.  
**Other Products:** Continuous filing machines; band saw machines; high speed friction saw; vertical cut-off saw; butt-welders.

**TED GROB CO.**

Grafton, Wis.

**Booth No. 1643**

**Personnel:** Theodore Grob; Ernst Grob; Burkhardt Grob; Jesse Bytell; Walter Ulbrich; Edward Hicks.

**New Products:** Grob thread rolling machines; Wanderer—thread milling machine; universal lead screw and spline shaft milling machine.

**Other Products:** Wanderer milling machine.

**GROBET FILE COMPANY OF AMERICA, INC.**

New York, N.Y.

**Booth No. 434**

**GUTHERY MACHINE TOOL CORP.**

New York 36, N. Y.

**Booth No. 1630**

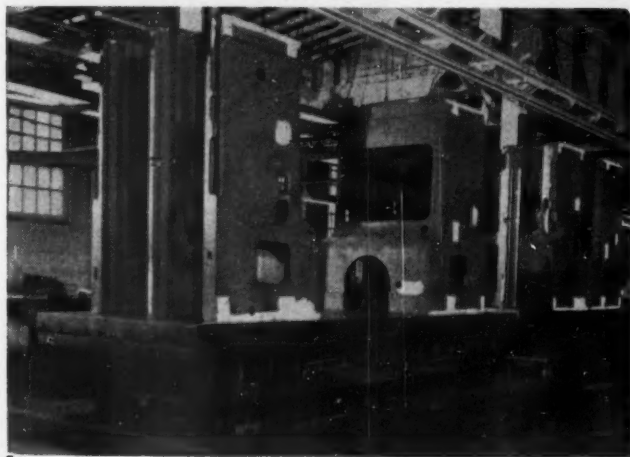
**Personnel:** Frank F. Guthery; Frank U. Furth; William F. Rahn; James J. Murray; Lou Johnson; Peter Flesch.

**New Products:** Traub turning & copying automatic screw machine with Swiss-type guide bushing; Traub automatic chip separating machine (to separate

screw machine parts from chips); Leinen turret lathe, with two turrets (has 12 positions).

**Other Products:** Standard Traub automatic screw machine.

**Ernst Grob universal thread rolling machine**  
Ted Grob Co.



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DUTY  
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PLATES**

●  
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UPON REQUEST**

**GOODMAN MANUFACTURING COMPANY**

**4834 So. Halsted Street**

**Chicago 9, Illinois**





Turning, copying automatic  
Guthery Machine Tool Corp.

**H & H RESEARCH CO.**  
Detroit, Mich.

**Booth No. 1022**

**Personnel:** W. M. Smith, Pres.; Murray Ehrenhaus, Sales Eng.

**Products:** Reciprocating action tools and their accessories such as files, hones, polishers, sawholders, etc.

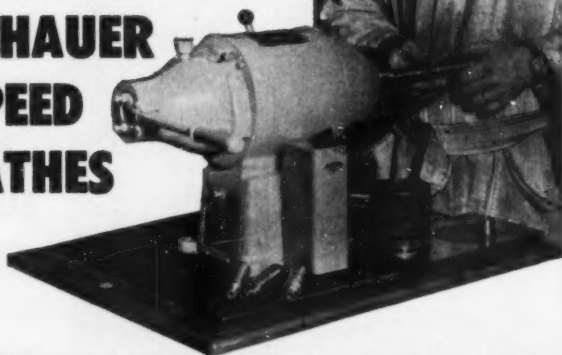
**WM. HALPERN & CO., INC.**  
Mount Vernon, N. Y.

**Booth No. 2019**

**Personnel:** Wm. Halpern.; J. Kalins; J.

# DO LAPPING AND A ZILLION OTHER JOBS ON

## SCHAUER SPEED LATHES



Schauer Speed Lathes handle many secondary finishing operations—lapping, filing, deburring, polishing, etc.—on metal and plastic parts, *faster, at less cost*. Thousands are in use on an almost *unlimited* variety of jobs.

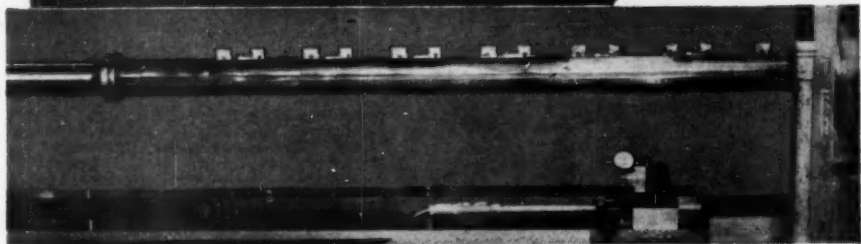
Many sizes and models with holding devices to fit the application. Speed *your* production with Schauer Speed Lathes. Write today for Bulletin 500.

**SCHAUER MANUFACTURING CORP.**

**4502 Alpine Ave., Cincinnati 36, Ohio**

# Straddle facing and grooving tools made by LEHMANN BORING TOOL enables this engine crankcase to be

## Machined in 7 Minutes!



**A** LEHMANN-made boring bar with 34 synchronized cutters is shown above following the machining of an engine crankcase for the Continental Motors Corporation of Muskegon, Michigan. The blocks and tungsten-carbide cutters are hydraulically raised to groove, face and chamfer the engine's bearing bores. Below is a bottom view of the engine showing the 7 machined bores. The actual machining time is *only seven minutes!*

This is another example of how LEHMANN Boring Tools give accuracy, interchangeability and economy to a technical tooling operation. Whether your boring tool needs are simple or complicated, LEHMANN offers 35 years experience, a wide range of ability, to bring assured successful application to *your* needs.



# LEHMANN BORING TOOL

Tell us your  
problems without obligation  
or write for Catalog BT-12 today!

Brown; H. Becker; A. Lipton.

**New Products:** Medelton Grip Feed Powerroll embodies use of power driven pinch rolls to uncoil stock; rolls are spring loaded, eliminating slippage of heavy gage stock; material up to  $\frac{1}{8}$ " thick can be fed to press automatically.

**HAMMOND MACH. BUILDERS, INC.**  
Kalamazoo, Mich.

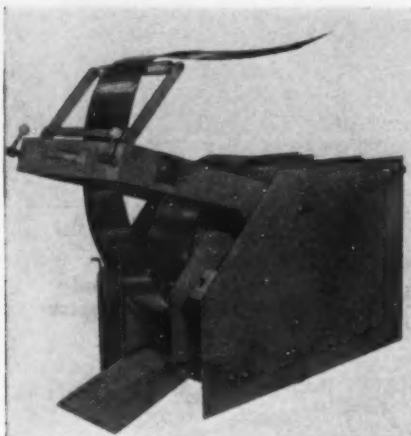
**Booth No. 1303**

**Personnel:** L. N. Albrecht; S. H. Miller; W. C. Johnson; R. P. Ellis.

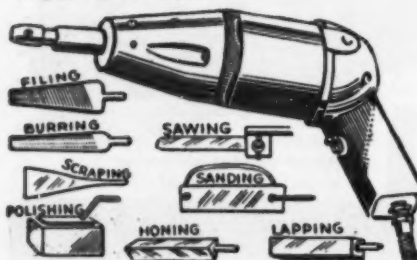
**New Products:** Wet or dry 6", Model WD-6 (illustrated) incorporates features of the 10" and 14" machines such as: safety cup disc, no-spray, no-splash guards, self-contained pump and tank, table adjusts to compensate for wheel wear, quick change wheels, room for two operators.

**Other Products:** Carbide tool grinder,

**Grip Feed Powerroll**  
Wm. Halpern & Co. Inc.



**Reciprocating Tool**  
H & H Research Co.



**6" wet or dry grinder**  
Hammond Mach. Builders

abrasive belt grinder, polishers, polishing and buffing lathes, dust collectors, general purpose grinders, tool grinders, abrasive belt carbide tool finisher.

**HANDY & HARMAN**  
New York, N. Y.

**Booth No. 613**

**New Products:** Two silver alloy brazing demonstrations. One shows a typical high production brazing setup. A brass screw machine part is joined to drawn brass body of a household radiator air valve. Easy-Flo 45 and Handy Flux are used to make the joint. Other demonstration includes a torch brazing station where the interest centers around brazing of cemented carbide tips to tool holders. Interesting samples of brazed parts.

**HANSEN MFG. COMPANY**  
Cleveland, Ohio

**Booth No. 1352**

**HANNA ENGINEERING WORKS**  
Chicago 22, Ill.

**Booth No. 1417**

**Personnel:** J. T. Ellis; J. C. Hanna; A. F. Jensen; W. B. Kuhnke; W. G. McIntosh; D. L. Shanks.

**New Products:** Low pressure cylinders; high pressure cylinders; Unitite valves; Mastair valves; solenoid valves; Flo-set valves; foot-operated valves; pilot valves.

**HANNIFIN CORPORATION**  
Chicago, Ill.

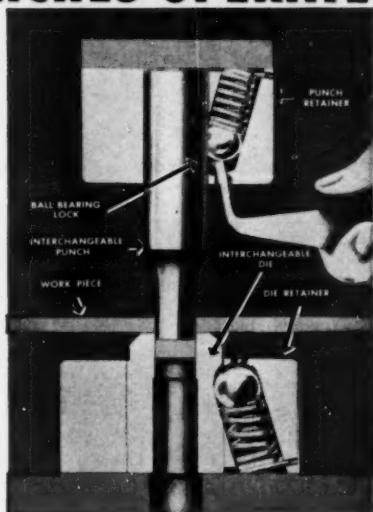
**Booth No. 527**

**HANSFORD MFG. CORP.**  
Rochester 7, N. Y.

**Booth No. 2064**

**New Products:** Model 1010 Hansford die

# HOW R-B PUNCHES OPERATE



R-B standardized punches and die buttons are inserted in their retainers with a simple push and a twist.

Punches and die buttons are instantly removed by inserting a tanged tool in retainer hole to release the locking ball.

Each R-B retainer is equipped with a spring-loaded locking ball which engages the recessed portion of standard and special R-B punches and die buttons. Locked punches and die buttons are always accurately aligned—no additional keying is required.

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## Also Produced in

### OTHER ALLIED PLANTS

SPECIAL COLD FORGED PARTS

STANDARD CAP SCREWS

PRECISION GROUND PARTS

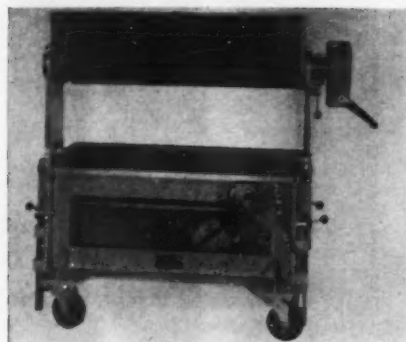
SHEET METAL DIES

MADE OF FERROUS ALLOYS,

ZINC ALLOYS OR PLASTICS



**4M low pressure cylinder**  
Hanna Engineering Works



**Model 1010 die handler**  
Hansford Mfg. Corp.

handler with Model 1011-1 motorized lift attachment. The die handler will handle dies up to 24" wide x 43" long. By turning a crank the work may be revolved around the axis of top platen. Drilling or milling may be performed on the table.

**R. G. HASKINS COMPANY**  
Chicago, Ill.

**Booth No. 639**

**HANSON-WHITNEY CO.**  
Hartford 2, Conn.

**Booth No. 414**

**New Products:** The Hanson-Whitney internal thread comparator is a precision instrument, designed for fast, accurate, economical visual gaging of all forms and classes of internal threads, in diameters ranging from  $\frac{3}{16}$ " to  $1\frac{1}{2}$ ". All classes of fit, American Standard or Unified Threads, can be checked with a simple adjustment of the indicator tolerance hands. The need is eliminated for maintaining 3 or 4 no-go thread plug gages for each thread size.

**HAUSE ENGINEERING**  
Montpelier, Ohio

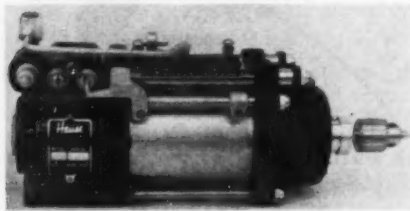
**Booth No. 2001**

**Personnel:** Ralph R. Hause; Harvey Haldiman; Warren G. Fisher.



**New internal thread comparator**  
Hanson-Whitney Co.

**New Products:** Model 14, Model 04, Model 24 Holomatic drill units; Model DT-1 drill-tapper unit. The Model 14, weighing 30 lbs., accomplishes single and multiple feed rate operations. Powered by compressed air, hydraulically fed, it is suitable for automatic or manual cycle control. Stroke adjustable to 4" with ample thrust for  $\frac{1}{2}$ " dia. drilling in steel. Motors available to  $\frac{3}{4}$  hp and speeds of 500 to 15,000 rpm.



**Drill unit, Model 14**  
Hause Engineering

**H. E. B. MACHINE TOOLS, INC.**  
New York 17, N. Y.

**Booth No. 509**

**Personnel:** Max Sebba; John Graf; Phil Auerbach; Jack Montaudouin.

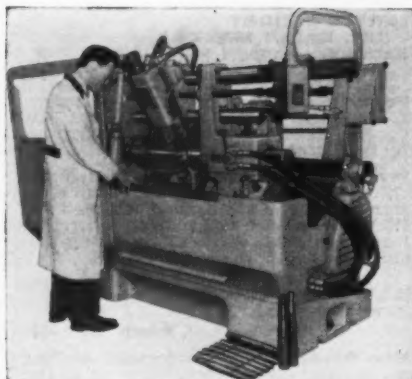
**New Products:** H.E.B. pilot automatic copying lathe (illustrated), Constan radial drill, and Sempun portable magnetic flaw detector. The lathe is completely automatic, taking as many roughing and finishing cuts as necessary after machine is loaded and button pressed. Single front tool copyturns all the different diameters, tapers, radii, etc.

**Other Products:** H.E.B. copying lathe Model OP, H.E.B. copying lathe Model GT, Constan carbide tool grinder.

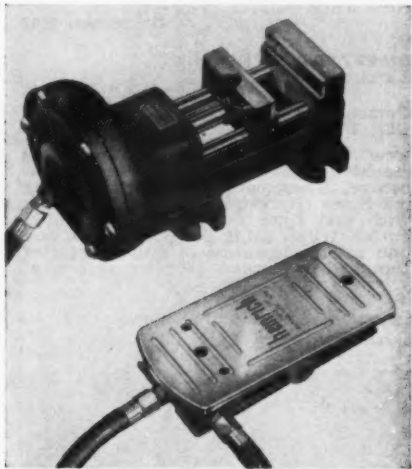
**HEINRICH TOOLS INC.**  
Racine, Wis.

**Booth No. 1646**

**Personnel:** Robert C. Heinrich; John C. Gertenbach; Stanley Sheppard; W. E. Whitman; C. B. Teeter.



Automatic copying lathe  
H.E.B. Machine Tools



Air vise  
Heinrich Tools Inc.

**New Products:** Heinrich Model 33 air vise. Grip force 15 times air line pressure; 3" jaw adjustable to maximum opening of 3½", with maximum travel of ¾". Air regulator permits grips ranging from feather light touch to rugged squeeze.

**Other Products:** Model 33 air vise, Grip-Master drill press vises and fixture locks, Handnib shears, nibblers, punches and rod cutters.

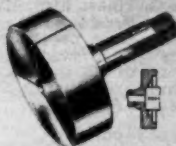
## SPECIFY KASSON PRECISION COLLETS AND ATTACHMENTS

IMMEDIATE DELIVERY FROM STOCK



480  
(AC-50)

All collets  
in hexagon,  
square and  
round.



### KLUTCH-KOLLET

Step collet for accurate chucking to 2¼" dia. Soft head for easy boring. Lowest price on market! Models 3AT, 3C, 5C.

FOR ATLAS • LOGAN • SOUTH BEND  
CRAFTSMAN • SHELDON LATHES, ETC.

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Positive grip on  
undersize, oversize  
or standard diameter  
work! Patented  
coordinate cams  
eliminate fingers.

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attachment!



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DRAWBAR  
½" cap.



LIVE CENTER  
(Ball Bearing)  
Double  
sealed for ac-  
curacy.

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Formerly General Die & Stamping Co.  
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Integrity  
Since  
1919



**HEINTZ MANUFACTURING CO.**  
Philadelphia, Pa.

Booth No. 1435

**HELI-COIL CORP.**  
Danbury, Conn.

Booth No. 713

**Personnel:** Eduard Baruch; P. E. Wolfe; H. O. Haas; Mrs. K. Taylor.

**New Products:** New power inserting tools, tang breakoff tools, maintenance kits (illustrated). Kit contains assortment of 25 inserts each of four commonly used sizes, tools and wire inserts for repair.

**Thread repair kit**

Heli-Coil Corp.



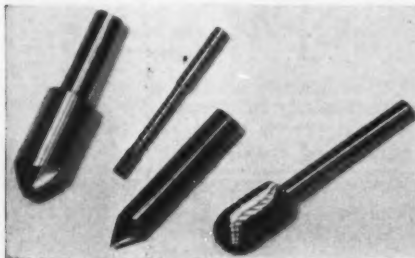
**HELLER BROS. CO.**  
Newcomerstown, Ohio

Booth No. 2121

**New Products:** Chatterless countersink, internal grinding burr, center lap and carbide burr (illustrated). Countersink in hss or carbide, center lap for hardened steel is of carbide and burrs are used like internal grinding wheels and mounted points.

**Other Products:** Ball pein, machinists' hammers, milled curved tooth, rotary, American and Swiss pattern files.

**Chatterless countersink**  
Heller Bros. Co.



**HENRY & WRIGHT**  
(Div. Emhart Mfg. Co.)  
Hartford, Conn.

Booth No. 1060

**Personnel:** E. E. Legge, C. F. Sherman, J. N. Roche, L. C. Reeves, Howard Bill, C. H. Hamilton, John Winterbottom, B. B. Patten, F. R. Seghers.

**Products:** 60-ton automatic dieing machine with attached Dieometer, an electronic control instrument devised by H&W to measure and indicate operating loads; ashtrays produced on dieing machine at booth.

**HILLYER INSTRUMENT CO.**  
New York 13, N.Y.

Booth No. 2187

**New Products:** New automatic drilling machine drills a center hole on a flat metal sheet of any shape as well as castings without layout. It will also drill Bakelite, slate and marble, crackle finish metal, etc.

**HILLYER CO.**  
New York, N.Y.

Booth No. 2189

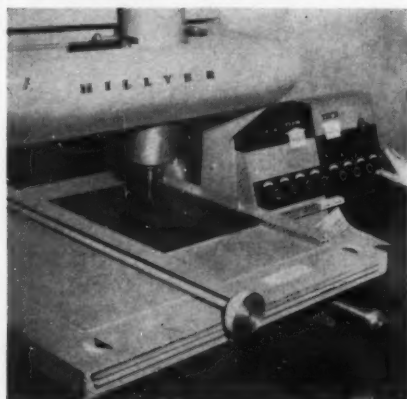
**HOMESTRAND, INC.**  
Larchmont, N. Y.

Booth No. 343

**Personnel:** Harald Finnstrand, John Dix; Dick Hermanson.

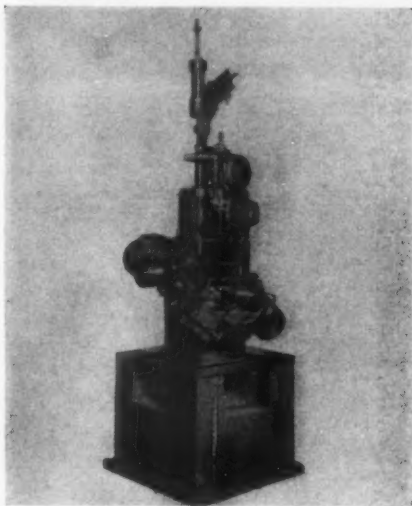
**New Products:** Automatic flutemilling machine, center-tapping machine, Endoscope. These automatic drill cutting machines (Bergstrom of Sweden) work with one flute cutter and one relief cutter. When going down one flute and one relief clearance is cut; thereafter the drill is turned 180° by means of

**New automatic drilling machine**  
Hillyer Instrument Co.



quick transport. Then the second flute and relief are cut when going upwards

**Flute milling machine**  
Homstrand, Inc.



and the ready milled drill is ejected and a new drill material fed in. Taper of the drill core is controlled by cams. **Other Products:** Vernier calipers, Vernier height gages, dial indicators, sine bars, gage stands, dial indicator testers.

**HORTON CHUCK**  
Windsor Locks, Conn.

**Booth No. 2055**

**Personnel:** George S. Chairamonte, Sales Mgr.; Douglas H. Thomson, V.P.

**New Products:** Plastic chuck demonstrators, hard-coated aluminum chuck, 42" J-type chuck. The plastic replica of an 8" chuck is complete in every working detail, with colored parts to assist in demonstration.

**Other Products:** Hard-coated aluminum chucks, 6"-8"-10"-12"-14"-15" chucks of assorted models, plastic model of pinch unit, pinch unit.

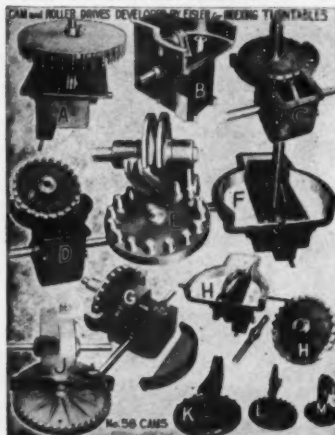
**E. F. HOUGHTON & CO.**  
Philadelphia, Pa.

**Booth No. 1743**

**New Products:** A versatile, fortified cutting fluid called Antisept, all purpose base, is water soluble. High lubricity, film strength claimed. Three rust preventatives: Veto 377, thin film, solvent type for indoor storage; Rust Veto 1038 is polar type for short term protection; Veto 344, used to protect parts outdoors, is rapid drying, .003" asphaltic type of film used on steel, brass, aluminum or copper and will withstand 30 cycles in 100% humidity-ultraviolet light test.

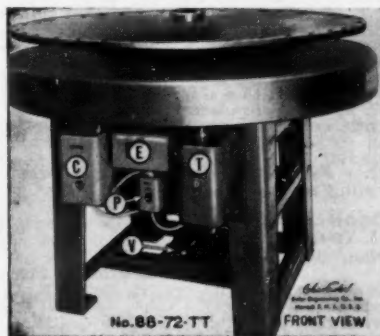
**INDEXING TURNABLES AND POSITIONERS**

Eisler makes over 100 different types for welding, brazing, soldering, spraying, glass insulators, melting and glass glazing, with rotating stations and motorized or hand operated. Rotating tables of all kinds for over 33 years. We supply any part or complete equipment and we make special turntables to your order and cams made to order.

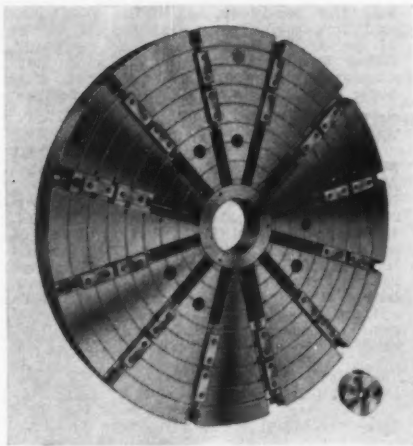


**A SPECIALIZED CAM MILLING SERVICE, SPOT AND BUTT WELDING**

**C  
A  
M  
S**



**DR. CHAS. EISLER M.E., PRES.**  
**EISLER ENGINEERING CO., INC., 762 So. 13th Street, Newark, N.J.**



**J-Type chuck**  
Horton Chuck

**HONAN-CRANE CORP.**  
Lebanon, Ind.

**Booth No. 1438**

**Personnel:** S. J. Fresch; W. S. James; J. L. Montmarquet; E. O. Wolgast; J. E. Pirie; J. F. Harms; J. L. Woll; A. R. Van de Weghe; F. Skelley.

**Products:** Houdville magnetic filter, conveyor, Dri Pure (water/oil separator), Honan-Crane cartridge purifier, bulk purifier, "T" coolant clarifier.

**HOWE & FANT, INC.**  
East Norwalk, Conn.

**Booth No. 1967**

**Personnel:** A. S. Howe, Jr., Pres.; R. B. Fant, V.P.; Arnold Charlat; John Pape; A. T. Matus; Frank De Preth; Neil Mantell; Edward Griffin.

**New Products:** Howe and Fant turret drilling machines; six different drill press operations, including tapping, can be performed at a single location. Takes 34" x 50" floor space. Spindle speed, depth control, and automatic reversal can be individually pre-set for each spindle.

**Other Products:** Howe and Fant turret drilling machine Lign-O-Matic turret.

**HUDSON AUTOMATIC MACH. & TOOL CO.**

Union City, N. J.

**Booth No. 2113**

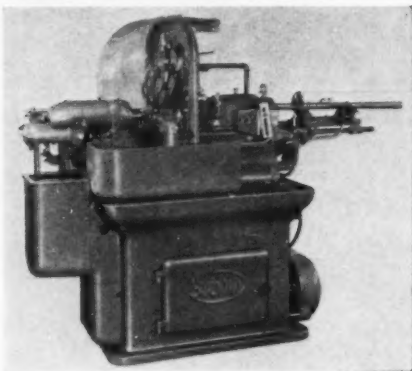
**Personnel:** G. Bernegger; H. Peter; E. J. Beaver; H. Fichter.

**New Products:** Strohm M205 Swiss type automatic, capacity  $\frac{3}{4}$ " (20 mm), 5 tools, accelerator, max. turning length 6", 3-spindle attachment; also redesigned Strohm M105, capacity  $\frac{3}{8}$ " (10 mm), 5 tools, max. turning length 4", various attachments.

**Other Products:** Strohm combination tool grinding & lapping machine, cam tracer and cam miller for Swiss type automatics, and precision bench millers (vertical & horizontal) for secondary operations on screw machine parts.

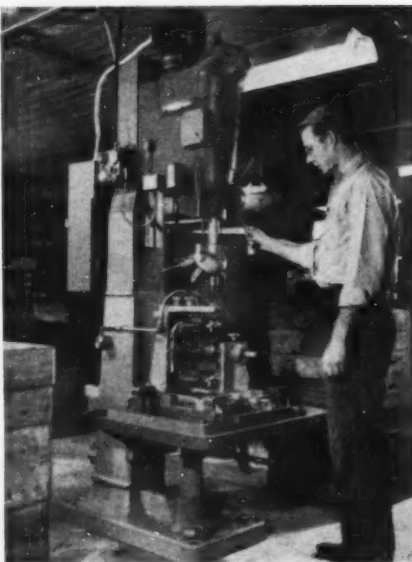
**Swiss type automatic**

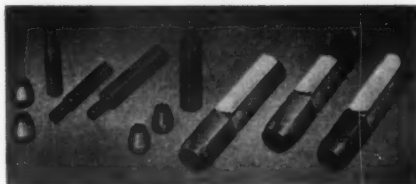
Hudson Automatic Mach. & Tool Co.



**Turret drilling machine**

Howe & Fant Inc.





**Reversible pin gages**  
Huron Machine Products

**HURON MACHINE PRODUCTS**  
Dearborn, Mich.

**Booth No. 2008**

**New Products:** Wire type, reversible pin gage blanks in plain and thread lengths; stocked in approximate 1/64" sizes; made of Graph-Mo oil hardening tool steel, 62-64 Rockwell.

**Other products:** Component parts to make complete reversible pin gages, single or double end style, etc.

**HYDRAULIC PRESS MFG. CO.**  
Mt. Gilead, Ohio

**Booth No. 1212**

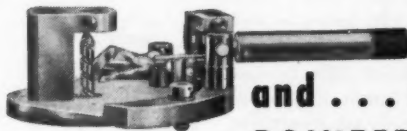
**New Products:** Hydraulic cylinders,

# The *New* NILCOID DIAL INDICATOR

with the  
REVOLUTIONARY NEW  
NILCOID MOVEMENT



RE. PAT.  
No. 21934

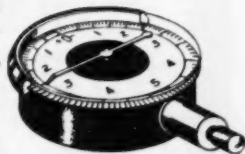


and . . . STEP DOWN,  
POINTER-LINE DIAL

is

## *The World's FINEST!*

No gear train . . . Only four  
moving parts . . . Increased  
accuracy . . . Lower maintenance . . . Shockproof . . .  
Lower cost . . .



WRITE FOR STARTLING  
DESCRIPTIVE  
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**NILSSON** GAGE COMPANY  
INCORPORATED  
POUGHKEEPSIE • NEW YORK

valves, pumps, motors, power units, accessories. Showing sectional, operative models of directional, functional valves. Include 4-way, 2-way and rotary pilot valves for oil hydraulic service up to 3000 psi. Pressure controls, flow controls, check valves display.

**Other Products:** Gear, piston pumps and motors; standard cylinders, valves, etc.

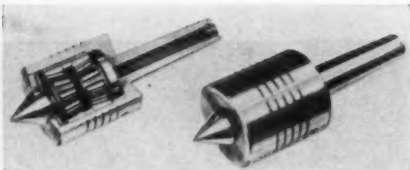
**IDEAL INDUSTRIES, INC.**

Sycamore, Ill.

**Booth No. 531**

**Personnel:** J. W. Bevington, Product Mgr.; V. G. Mulligan, Field Sales Mgr.

**New Products:** Ideal "Universal" live center.



**Universal live center**

Ideal Industries, Inc.

**Other Products:** Cush-N-Blo hammers, electrical etchers, electrical markers.

# Atlantic *RAKER SET BANDS* SAVE YOU TIME AND MONEY!

Yes, the instant you order Atlantic Raker Set Bands you're in for cleaner, more precise cutting . . . you're dollars and hours ahead . . . you're due for more work per blade than you've ever had before — and here's why!

Raker Set Bands glide through the toughest metals with amazing accuracy — cut true clean through to tolerances as close as .002" — with "finished product" results on job after job.

Atlantic's individually milled, heat hardened teeth and ultra-flexible bands virtually eliminate checks and flaws—prolong band life, slash downtime.

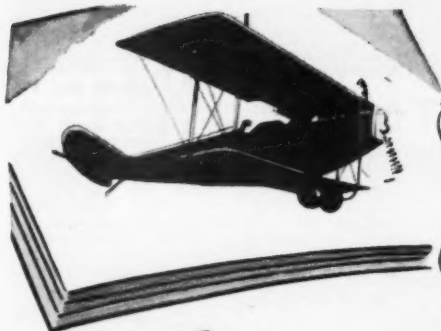
**FREE**—Send today for the graphic story of Atlantic's family of fine saws. If you have a specific saw application you are wondering about, include a brief description — it will meet with interested engineering attention and be promptly acknowledged.



# Atlantic

ATLANTIC SAW MFG. CO., INC.  
Brewery St. New Haven, Conn.

ATLANTIC



**TOPS IN ITS DAY**

**BUT...**

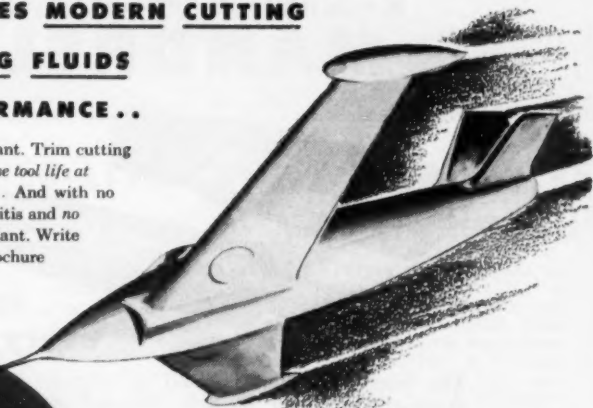
**TODAY'S PRODUCTION MACHINERY**

**REQUIRES MODERN CUTTING**

**AND GRINDING FLUIDS**

**FOR BEST PERFORMANCE..**

Trim is *not* just another coolant. Trim cutting and grinding fluid will increase tool life at higher rates of production . . . And with no rust, no gumming, no dermatitis and no *STINK!* Try Trim in your plant. Write for the new 40 page Trim brochure on cutting and grinding procedures.



**THE MASTER  
CUTTING AND  
GRINDING FLUID**

**SEE US AT  
BOOTH 1920  
A.S.T.E. SHOW**

**TRIM**

**A PRODUCT OF MASTER CHEMICAL CORPORATION • 13, HURON ST. • TOLEDO 1, OHIO**



**INDEX MACHINE CO.**  
Jackson, Mich.

**Booth No. 1308**

**Personnel:** G. S. Adams; H. T. Andress; John Flanagan; Harry Bass.

**Products:** Model 40 high speed vertical milling machine; Model 55 high speed vertical milling machine; Model 60 plain horizontal milling machine; Model A-12 precision rotary table; rod and indicator sets, vises, right angle milling heads, and other accessories, attachments, and tooling.

**INDUSTRIAL DIAMOND ASSN.**

**OF AMERICA**

New York, N. Y.

**Booth No. 1860**

**Personnel:** Wm. F. Mullins, Pres.; Piet Smit, 1st V.P.; Walter J. Meinhardt, 2nd V.P.

**Products:** Exhibit centers around slogan, "There is no substitute for diamond."

**INDUSTRIAL SCIENTIFIC CO.**

New York, N. Y.

**Booth No. 135**

**New Products:** Universal Probograph, automatic inspection gage for such machine parts as gears, cams, turbine blades, lead screws, or any intricate mechanical parts; electrical, exerts no pressure; probes have .001 radius, or balls and flats available; magnification ratios from 10:1 to 800:1; automatically controlled or push button operated; graph recorded.

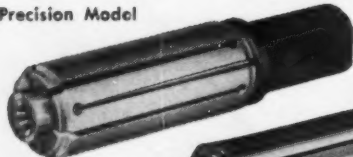
**INDUSTRIAL TECTONICS, INC.**

Ann Arbor, Mich.

**Booth No. 433**

# CHAMPION E-X-P-A-N-D-I-N-G MANDRELS

Precision Model



Standard Model



give  
speed to  
every set-up

The flexible sleeve, mounted on tapered arbor, expands automatically to fit the hole. Inserted by hand — no arbor press needed. Always an exact, positive, concentric fit. Locked by a single mallet blow. Unlocked the same way. CHAMPION Expanding Mandrels are used in machine shops around the world. Save time, cut production costs, whether the job calls for machining one piece or a thousand.

**Precision Model** has expansion range of .010". Available in regular sizes to fit holes from 1/4" to 3" diam. Holds work to tolerances of .0002" run-out. Guaranteed for precision grinding, turning and milling operations.

**Standard Model** maintains close tolerances, handles material of any length bore, hard or soft metals — from thin tubes and bushings to heavy castings and forgings. A set of fourteen will fit every hole from 1/4" to 9 1/2" diam.

CHAMPION Expanding Mandrels can be made in special shapes and sizes to fit any specifications. Quotations on request. Write for descriptive folder today.

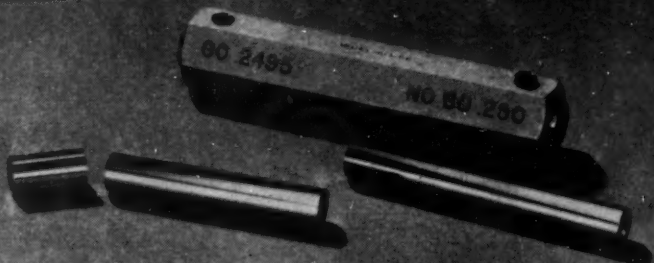
**WESTERN TOOL & MFG. CO., INC.**

Dept. 27

Springfield, Ohio

**VK**

## WIRE TYPE PLUG GAGES



### VASTLY LONGER-LIVED AND MONEY-SAVERS BECAUSE THEY'RE "CUT-OFF-ABLE" AS WELL AS "REVERSIBLE"

As a Van Keuren agent put it, "They're not only reversible, they're cut-off-able." And that means when you buy Van Keuren Wire Type Plug Gages, the sizes below  $\frac{3}{8}$ " may be cut off when ends become worn and as many as from five to ten gages made available from the  $1\frac{1}{8}$ " and 2" long units. It is not only economical and practical to use Van Keuren Gages but it is a very simple operation to cut off the ends by following instructions furnished on request. The illustration above shows clearly the cut-off and reversible features.

VK Wire Type Gages are available in ZZ to XX accuracies in sizes from .001" to 1.000". They are furnished in alloy tool steel, high speed steel, chromium plate or tungsten carbide. Whatever the gaging job, the extra length provided in VK units will save you money. It will also pay you to take advantage of VK deliveries. In many cases we can ship your requirements from stock.

VK Wire Type Plug Gages are fully described in Catalog & Hand Book No. 35, available on request by writing to: The Van Keuren Co., 177 Waltham St., Watertown, Mass.

**VK**

35th YEAR

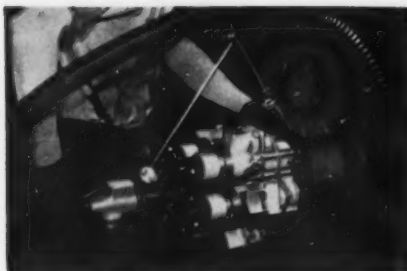
THE

*Van Keuren* CO.,

177 WALTHAM STREET, WATERTOWN, MASS.

Light Wave Equipment • Light Wave Micrometers • Gage Blocks • Taper Insert Plug Gages • Wire Type Plug Gages • Measuring Wires • Thread Measuring Wires • Gear Measuring System • Shop Triangles • Carboloy Cemented Carbide Plug Gages • Carboloy Cemented Carbide Measuring Wires • Chrome Carbide Taper Insert Plug Gages





**Automatic nut runner**  
Ingersoll-Rand

**INGERSOLL-RAND**  
New York 4, N.Y.

**Booth No. 1835**

**New Products:** New automatic nut runner. At the touch of a button the operating display will shift into position, locate the sockets on the nuts and tighten them. The multiple nut-runner provides a completely automatic packaged unit for simultaneously running a number of nuts.

**Other Products:** Air and multi-cycle tools, air-operated screw drivers, angle wrenches; air hammers; air hoists; compressors; centrifugal coolant pumps.



➡  
**See these  
NEW  
Swanson  
Precision  
Products**

**Booth 1968  
ASTE Show**

***This entirely new universal Inspection Device provides a new standard in inspection equipment which saves space, man-hours and dollars.***

The Basic Unit Includes: (1) A ground or scraped surface plate, (2) A patented concentricity-checking attachment, (3) Adjustable Bench Centers, (4) V-Blocks, (5) Sine Plate and (6) Indicator Attachment.

All devices are self aligning and quickly adjustable or removable. Specifications meet finest precision standards. Initial costs are considerably less than the total of comparable devices bought separately. Write for Bulletin VB.

➡  
Some other Swanson Precision Products are:  
Turret Indexing Units • POWER-DI Press Units  
Feeding Hoppers • V-Liner Concentricity Checking Fixtures

**ENGINEERS AND BUILDERS OF SPECIAL AUTOMATIC MACHINES**



**INTERNATIONAL RESEARCH &  
DEVELOPMENT CORP.**  
Columbus, Ohio

Booth No. 435

**THE IRON AGE MAGAZINE**  
New York, N. Y.

Booth No. 839

**INSPECTION EQUIPMENT COMPANY**  
Birmingham, Mich.

Booth No. 241

**THE JACOBS MANUFACTURING CO.**  
West Hartford, Conn.

Booth No. 1560

**JANNEY CYLINDER COMPANY**  
Philadelphia, Pa.

Booth No. 1313

**JARKE MFG. CO.**  
Chicago 40, Ill.

Booth No. 1812

**Personnel:** Dan Jarke; Richard Jay.  
**New Products:** Steelmobile; portable  
bar racks; portable wire coil racks.

**CHAS. L. JARVIS COMPANY**  
Middletown Conn.

Booth No. 1502

**C. E. JOHANSSON GAGE COMPANY**  
**DIV. OF SWEDISH GAGE COMPANY**  
Dearborn, Mich.

Booth No. 132

**ERIC S. JOHNSON CO.**  
Costa Mesa, Calif.

Booth No. 2156

## Introducing the **SWANSON**



A precision bench press  
that makes it possible to:

**Cut Die Costs 50%**

This new concept in bench punch presses eliminates the use of die sets and reduces die makers' time substantially. The press itself serves as a precision die set, and ready-made punch and die retainers eliminate making special die components. The POWER-DI unit can also be used for existing conventional dies.

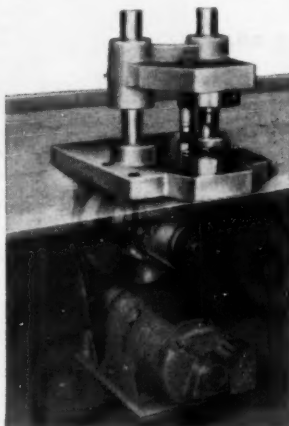
Model shown can be mounted to any bench by making suitable opening for self-contained motor and drive assembly attached to lower bolster of press. Exposed working section of press takes little more room than ordinary die set. Ideal for group bench mounting. Models also available for pedestal floor mounting, and for attaching to Swanson Turret Indexing Units.

1 ton capacity — 1 1/4" stroke — 3" to 7" shut height adjustment — 200 strokes per minute. Write for bulletin PDB.

Some other Swanson Precision Products are:

Turret Indexing Units • V-Liner Inspection Units • Feeding Hoppers  
V-Liner Concentricity Checking Fixtures

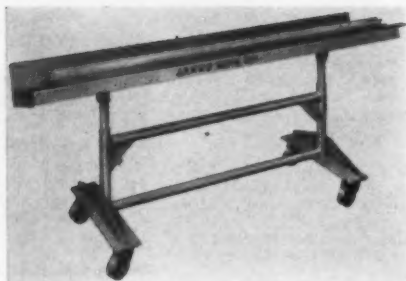
ENGINEERS AND BUILDERS OF SPECIAL AUTOMATIC MACHINES



See these  
**NEW**  
Swanson  
Precision  
Products

**Booth 1968**  
**ASTE Show**





**Steelmobil**  
Jarke Mfg. Co.

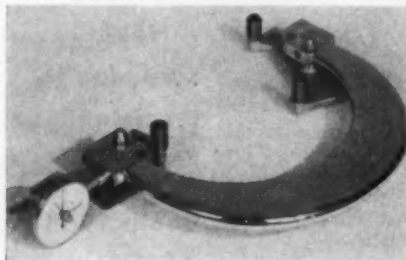
**THE JOHNSON GAGE CO.**

Bloomfield, Conn.

**Booth No. 334**

**New Products:** New hand type indicating snap gage, with the pivoting cradle design used in the conventional bench type Johnson Roll-Snap thread comparators—for maximum ease in engaging and disengaging work in gage. The tubular type frame results in minimum weight—approximately one pound per inch of (thread) diameter in sizes five inch and larger.

**Hand type indicating snap gage**  
The Johnson Gage Co.



**JONES & LAMSON MACHINE CO.**

Springfield, Vt.

**Booth No. 1509**

**Personnel:** J. E. Barbier, Mgr., Thread Tool Div.; W. F. Coutts, Mgr., Sales Thread Tool Div.; R. O. Beardsley, Mgr., Comparator Div.; H. L. Murch, Mgr., Sales Comparator Div.

**New Products:** Optical comparators, charts and fixtures; J & L die head and chasers speed threading in steel with carbide.

**Other Products:** Optical comparators, charts, fixtures, tangent and radial die heads, holders for die heads, chaser sharpening machine, sharpening fixtures, measuring gages.

**JOHNSON MANUFACTURING CORP.**

Albion, Mich.

**Booth No. 1017**

**A. A. JONES & SHIPMAN, LTD.**

Leicester, England

**Booth No. 1004**

**A. A. JONES & SHIPMAN OF CANADA LTD.**

Montreal, Quebec, Canada

**Booth No. 1004**

**KALAMAZOO TANK & SILO CO.**

(Mach. Tool Div.)

Kalamazoo, Mich.

**Booth No. 1734**

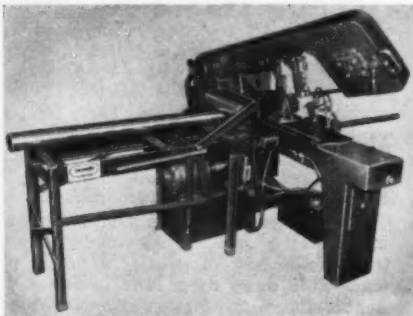
**Personnel:** J. M. Coombs, Pres.; L. M. Halleck, V.P.; J. J. Davitt, Sales Mgr.; W. Zook, Eng.

**New Products:** "Kalamatic" automatic cut-off machines showing a new automatic stock feeding device for all Kalamazoo horizontal metal cutting bandsaw machines, except Model 610. This is a completely hydraulic unit requiring only electric power. Hydraulic cylinders and valves automatically raise frame, feed stock, clamp vise, etc., for complete automatic cycle.

**Other Products:** Four models of the latest design horizontal metal cutting bandsaw machines, Models 610, 8C, 824, 1220.

**Cut-off machine**

Kalamazoo Tank & Silo Co.



**KAUFMAN MFG. CO.**

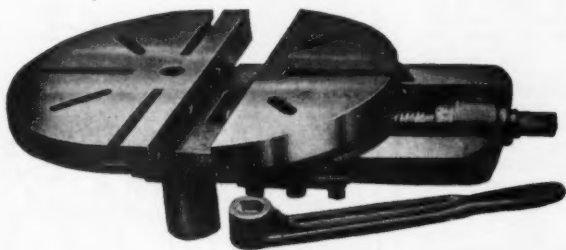
Manitowoc, Wis.

**Booth No. 1634**

**Personnel:** L. J. Kaufman, Pres.; C. H. Shemchak, V.P.; Earl W. Haugh, S.M.; Howard Wigen, Field Eng.; Marvin Dorak, Field Eng.

**New Products:** No. 75DT Kaufman hydraulic, single head combination drilling or tapping unit, similar to the two head unit shown in photo. Features head that can be used as a single spindle unit or can be arranged with a multiple head to drill or tap two or more holes at a time. Installation of lead screw assembly changes it to an automatic tapping unit.

# Try the MODERN SAFETY DRILL TABLE



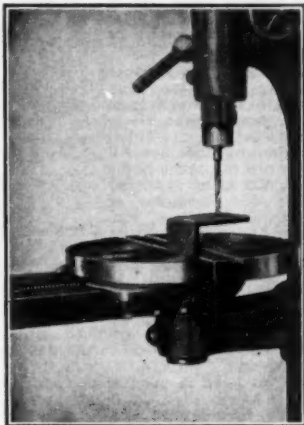
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**FREE  
TRIAL  
OFFER**

*For Faster, SAFER Work  
in Your Maintenance Department*

Combines a drill table, a vise, a set of parallels and V blocks. No more lost fingers, from hand held jobs that slip. No more 30 minute set-ups for a 1 minute drilling operation. Made in 6 sizes, from 8" to 28" dia. We guarantee each Safety Drill Table will save its cost on labor alone in 6 months, to say nothing of plant down time when vital maintenance is delayed even a few minutes.

#### WRITE FOR FREE FOLDER

Shows many typical set-ups, and use on radial drills. Complete specifications on all models. Covers MONEY BACK GUARANTEE and 30 DAY FREE TRIAL OFFER.



**MODERN MACHINE TOOL CO.**

*Jackson, Michigan*





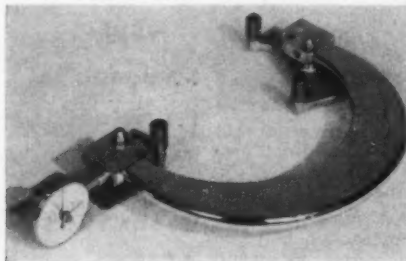
**Steelemobile**  
Jarke Mfg. Co.

**THE JOHNSON GAGE CO.**  
Bloomfield, Conn.

**Booth No. 334**

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**Hand type indicating snap gage**  
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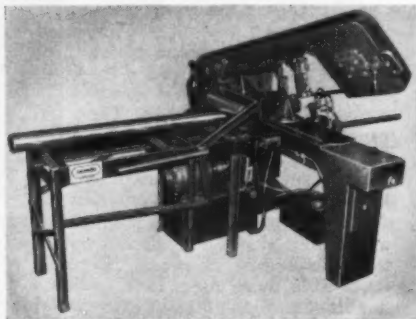
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Kalamazoo Tank & Silo Co.



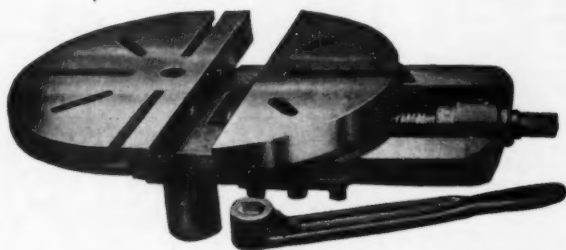
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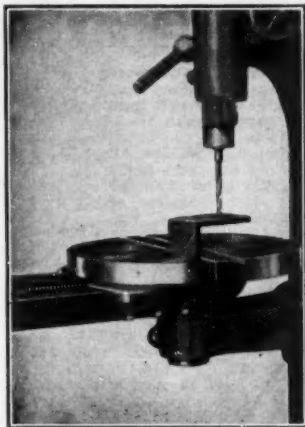
Under Our  
**FREE  
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*For Faster, SAFER Work  
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Combines a drill table, a vise, a set of parallels and V blocks. No more lost fingers, from hand held jobs that slip. No more 30 minute set-ups for a 1 minute drilling operation. Made in 6 sizes, from 8" to 28" dia. We guarantee each Safety Drill Table will save its cost on labor alone in 6 months, to say nothing of plant down time when vital maintenance is delayed even a few minutes.

#### WRITE FOR FREE FOLDER

Shows many typical set-ups, and use on radial drills. Complete specifications on all models. Covers MONEY BACK GUARANTEE and 30 DAY FREE TRIAL OFFER.



**MODERN MACHINE TOOL CO.**  
*Jackson, Michigan*

(Advertisement)

## Producers Pare Stamping Costs

**Modern Coil Handling Equipment Widens Use of Low Cost Coil Stock**

The battle to keep down costs is going well for producers of stampings. Coil stock and modern coil handling equipment are the decisive factors. Coil stock, with only two scrap ends to its entire length is far more economical than strips of straight stock with two scrap ends to every ten feet. Moreover, the type of coil loading and handling equipment built by F. J. Littell Machine Co. makes coil stock easier to handle than straight stock. Stamping producers are taking full advantage of these developments. Coil stock and Littell Coil Hooks, Reels, Straightening Machines and Automatic Roll Feeds are in wider use today than ever before.

**Hooks Serve Two Ways . . .**  
Littell Hooks make it a simple matter to unload coils on delivery, and to load reels. The variety of sizes have lifting capacities from 1,000 to 40,000 pounds.

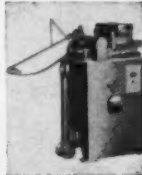
**Two Types of Reels . . .**  
Littell Coil Cradle Reels mount heavy coils, up to 30,000 pounds. Spindle Reels handle coils up to 40,000 pounds. Each type is available in plain or motor driven designs.

**Straighteners Flatten Stock**  
Removing curvature from coil stock as it passes from reel to punch press die is the function of Littell Straightening Machines. All models are the same basic design. Variation is in the number and diameter of straightening rollers employed . . . from 1" to 90" in width, and from .010" to .125" thickness.

**Automatic Roll Feeds . . .**  
Press output in many shops has been multiplied five times by simply attaching Littell Roll Feeds to presses for blanking, drawing, piercing, or cut-off work. The Littell Roll Feed is used with compound dies, single station dies, and progressive dies. Standard models are easily attached, serve all types of presses, and handle all standard widths and thicknesses of stock.

Descriptive details and prices on Littell Hooks, Reels, Straighteners and Roll Feeds are available on request. Inquiries are given immediate attention when addressed to

**F. J. Littell Machine Co.**  
4147 N. Ravenswood Ave., Chicago 13, Ill.



## UNIVERSAL DRILL BUSHINGS OUTLAST THEM ALL!



Superhoned bores reduce wear.  
Blended radius helps prevent tool  
hand-up and breakage. 100%  
concentricity and hardness tests insure  
accuracy and uniform high quality.  
Write for complete information.

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FRANKENMUTH 10, MICHIGAN

180-B

Attach this page to  
your letterhead and  
forward for our new  
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**CONICAL TOOL CO.**

3801 Buchanan S.W.  
Grand Rapids 8, Michigan



**\$19.95**

## DRILL . . . QUICKLY— SAFELY-EFFICIENTLY

By adapting a Pressure Handle to your presently laborious drilling jobs, one man with a Pressure Handle can control drilling operations to a maximum, thereby, reducing labor costs, twist drill breakage and operator fatigue. By having complete control of the drilling at all times, accidents are at a minimum.

Can you drill a 2" hole in 3" stainless steel pipe in 20 seconds? You can if you are using a Pressure Handle.

### A PARTIAL LIST OF SATISFIED PRESSURE HANDLE CUSTOMERS

Ford Motor Car Co.	Kendall Refining Co.
Chrysler Corporation	Cities Service Oil Co.
Cadillac Motor Corp.	Pennsylvania State Hwy.
Timken Roller Bear. Co.	Baldwin Locomotive Wks.
Dupont	Glen Alden Coal Co.
Fruehauf Trailer	Briggs Body Corp.
Bethlehem Steel	Worthington Pump Co.
Otis Elevator Co.	Carrier Corp.
Conoleum-Nair Co.	Aluminum Co. of America
Philadelphia Navy Yard	Revere Copper & Brass
General Electric Co.	St. Regis Paper Co.
American Radiator	International Harvester Co.
Armstrong Cork	Endicott-Johnson Corp.
Jones & Laughlin Steel Co.	and many more . . .

Territories open for ambitious specialty salesmen.

## WALTON TOOLS

TIME AND LABOR SAVERS FOR  
MACHINE SHOPS AND INDUSTRY

### WALTON TAP EXTRACTORS

Cut costs of  
Removing  
Broken  
Taps

Universally used for removing stubborn, balky taps that break off deep in threaded work. Quick, easy, inexpensive. Will not damage threads. In 2, 3 and 4 flute styles—sizes No. 4 to 1½".



### WALTON-AMERICAN TOOL HOLDERS

Save Time and Labor  
on Tool Changes.



Many holders in one. Head will swivel around an entire circle. May be set for straight, right or left hand offset positions. Will hold with perfect grip any size square or round tool bit or boring bar from ¼" to 7/16".

### "REPS" PIPE & STUD EXTRACTORS

Reduce Labor Costs  
For Removing Pipes,  
Studs and Screws.



For removing broken pipes or studs that defy movement. "Reps" makes a strong four point grip without hammering or pounding. Hardened steel. Pulls rather than reams. In sizes, for every pipe from ¼" to 2", every stud and screw from ¾" to 3½".

(\*Reps. Tool Company, Inc., a Walton affiliate.)

Sold by leading dealers, or write direct for catalog No. 12 of Walton Tools and details of 30 day free trial offer.

THE WALTON COMPANY, Hartford 10, Conn.

## REHNBERG-JACOBSON DRILL UNITS



Self-contained Drill Units are fully-automatic and cam-operated for positive quill action. They come in five sizes with drill capacities ranging from 3/16" to 1-1/2" (in mild steel).

These units are all available for quick delivery. You can mount them on structures of your own to make practical and efficient production machine tools.

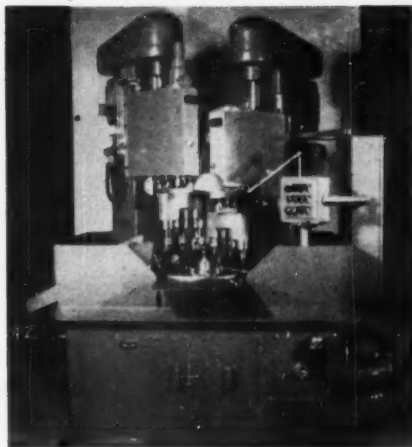
*Write for Literature*

REHNBERG-JACOBSON MFG. COMPANY

DESIGNERS & BUILDERS OF  
SPECIAL MACHINERY



2135 KISHWAUKEE ST.  
ROCKFORD, ILLINOIS



Drilling, tapping unit  
Kaufman Mfg. Co.

**Other Products:** No. 75DT Kaufman hydraulic combination drilling or tapping unit and No. 10A Kaufman tapping machine.

**KENNAMETAL INC.**  
Latrobe, Pa.

**Booth No. 1627**

**Products:** In addition to standard brazed and clamped insert tools, milling cutters and wear-resistant parts, other items shown are: Profiling tools having horizontally-clamped triangular inserts seated in a triangular slot to withstand side thrust when cutting to left or right (illustrated); woodworking blade of solid Kennametal  $\frac{1}{4} \times 1\frac{1}{2} \times 27$  inches long; special vertically-clamped triangular insert tools for shell turning; Kennametal hooks and blades for cutting rugs made of new synthetic yarns; special clamped insert tools for machining mounted railroad car wheels; Kentanium, titanium carbide, rod mill guide inserts for high velocity feeding of hot steel rod on edge into roll grooves; Kentanium, titanium carbide tools for removing hot (1500°F) bead from welded steel tubing, Kennametal blanking dies for production of steel laminations for rotor and stator electric motor parts.

**KLINGELHOFER MACHINE TOOL CO.**  
Kenilworth, N. J.

**Booth No. 1258**

**Personnel:** Albert Klingelhofer, Pres.; Albert Klingelhofer, Jr., Service Mgr.; George Lease, Sales Mgr.; and Werner Pickut, B. Welsch, O. Hofstetter, Salesmen.

# Now... a quality JIG BORER

that  
every shop  
can afford



The SIMA Jig Borer features an unusually large 32"x20" hand scraped table with 20" longitudinal and 15" cross travel. Designed by American shop men and solidly built by European craftsmen to combine accuracy, easy maintenance, versatility and medium price.

Created to small shop specs, the SIMA also handles large capacity work to a guaranteed accuracy of .0006" in 20". 16 spindle speeds; 35-1500 rpm. Spindle design facilitates use of standard tooling. Reasonably prompt delivery on this rigid well constructed SIMA Jig Borer.

Write today for full details

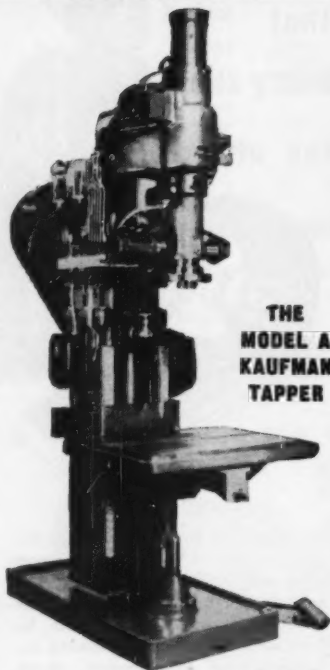
**AMITOOL COMPANY**  
**629 MAIN STREET**

WESTBURY, L.I., N.Y.

Westbury 7-3400



# KAUFMAN TAPPING MACHINES



THE  
MODEL A  
KAUFMAN  
TAPPER

Kaufman has specialized for many years in the building of tapping machines. Every machine is precision-built to meet the requirements of individual production jobs. Built with fully automatic cycle, single or multiple spindle heads and other most advanced features.

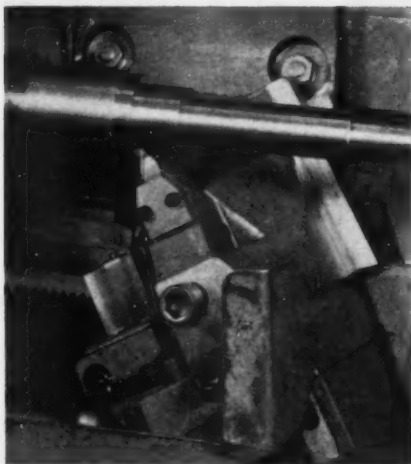
Send prints and sample of your work for further information and recommendations on how Kaufman Tapping Machines can reduce your production costs.

Visit us in booth 1634 at the A.S.T.E. Show, Philadelphia, April 26 to 30.

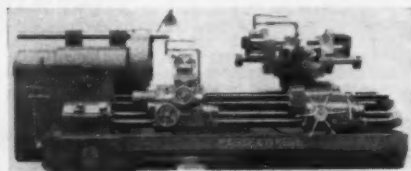
**KAUFMAN MFG. CO.**  
546 SOUTH 23TH STREET  
MANITOWOC, WISCONSIN

**New Products:** Hasse & Wrede turret lathe.  
**Other Products:** Machine tools.

**Profiling tool**  
Kennametal Inc.



**Turret lathe**  
Klingelhoefer Machine Tool Co.



**THE KORFUND CO., INC.**  
Long Island City, N.Y.

**Booth No. 2026**

**Personnel:** S. Rosenzweig; D. Vance; J. Harris; J. Weindling; A. Slota; H. Harris; N. Creash; L. Perlow; J. Ullman; E. G. Haring; R. Haring.

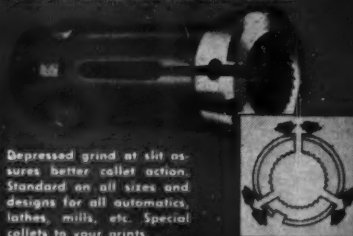
**New Products:** Korfund Type VPS Elasto-Rib damper (illustrated). Vibration control mountings for machine tools to eliminate vibration transmission into or from the machine.

**LAMINA DIES AND TOOLS, INC.**  
Detroit, Mich.

**Booth No. 2051**

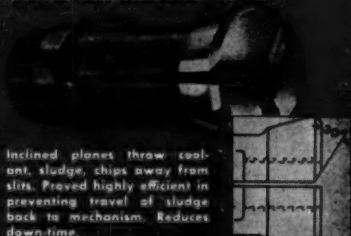
**Products:** Complete line of bushings and guide pins. Lamina guide bushings are wring-fit in the die shoe and securely held in position by three different types of retainers. Perfect alignment and free action is always maintained.

**ALL SHEFFER STANDARD COLLETS  
HAVE SHEFFER CLOVER-LEAF GRIND**



Depressed grind at slit assures better collet action. Standard on all sizes and designs for all automatics, lathes, mills, etc. Special collets to your prints.

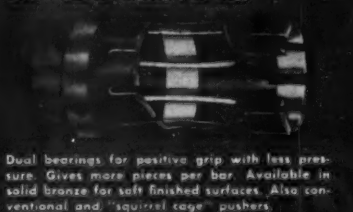
**ONLY SHEFFER BUILDS THE  
SHEFFER SELF-CLEANING COLLET\***



Inclined planes throw coolant, sludge, chips away from slits. Proved highly efficient in preventing travel of sludge back to mechanism. Reduces down-time.

# SHEFFER PRODUCTS ARE BEST

**SHEFFER "ECONOMY" PUSHER\*  
GIVES MORE PIECES PER BAR**



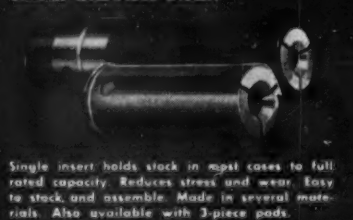
Dual bearings for positive grip with less pressure. Gives more pieces per bar. Available in solid bronze for soft finished surfaces. Also conventional and "squirrel cage" pushers.



**SHEFFER  
DIAPHRAGM  
CHUCK STEPS UP  
GRIPPING POWER  
8 TIMES\***

Simple booster mechanism multiplies air thrust. Permits stiffer diaphragm giving tighter jaw grip and wider application. Repeats to extreme accuracy. Designs for special applications.

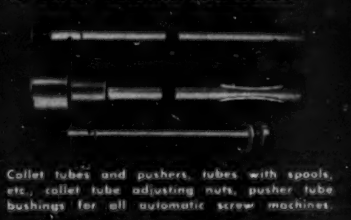
**SHEFFER "BB" PUSHER HAS  
SIMPLE ONE-PIECE INSERT**



Single insert holds stock in most cases to full rated capacity. Reduces stress and wear. Easy to stock and assemble. Made in several materials. Also available with 3-piece pads.

\*Patent applied for

**SHEFFER HAS COMPLETE LINE  
OF SCREW MACHINE ACCESSORIES**

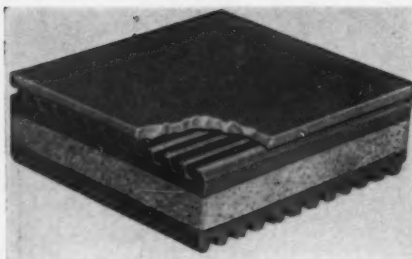


Collet tubes and pushers, tubes with spools, etc., collet tube adjusting nuts, pusher tube bushings for all automatic screw machines.

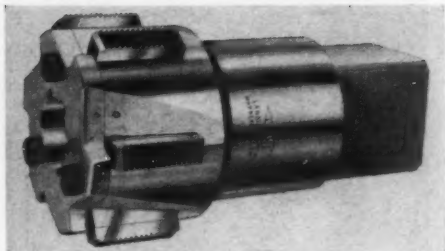
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**MEET THE DEMAND FOR PRECISION  
WITH TOOLS THAT MAKE PRECISION EASY**

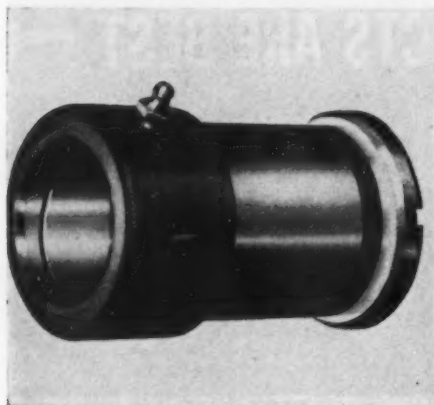
**SHEFFER COLLET CO.**  
TRAVERSE CITY, MICH.



**Vibration control mountings**  
The Korfund Co. Inc.

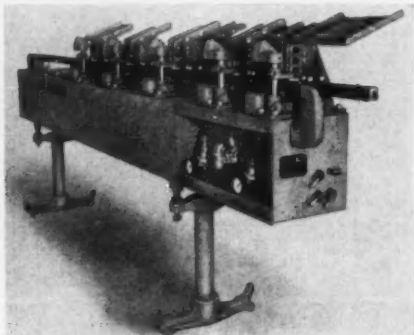


**Solid adjustable tap**  
Landis Machine Co.



**Nut type bushing**  
Lamina Dies and Tools, Inc.

Alven, Gen. Sales Mgr.; Joseph Sudlik, Sales.  
**Products:** Automatic magazine loading (AML) bar feed operating in conjunction with a Brown & Sharpe automatic screw machine.



**Automatic bar feed**  
Lipe-Rollway Corp.

**LANDIS MACHINE CO.**  
Waynesboro, Pa.

**Booth No. 1738**

**Personnel:** R. E. Yingling, Sales Mgr.; D. R. Stoner, Jr., Asst. Sales Mgr.; D. F. McLaughlin, Mgr. New York territory.  
**New Products:** (1)  $\frac{1}{8}$ " HH Landmatic hardened and ground die head; (2) ISA solid adjustable tap; (3) GA Lanroll thread rolling attachment. The die head is stationary for turret lathes, hand and automatic screw machines. Designed for self-opening or pull-off action for high production threading. Adjustable taps for high production tapping on reversing spindle machines. Permit rapid setup; versatile.

**LIPE-ROLLWAY CORP.**  
Syracuse, N. Y.

**Booth No. 726**

**Personnel:** E. S. Mariotte, Specialist; Bernard C. Harney, Development Eng.; Harry Wuilliez, Asst. Sales Mgr.; Gerald Lanphere, Lab. Asst. Mgr.; A.

**LAPEER MANUFACTURING CO.**  
Detroit, Mich.

**Booth No. 1350**

**LASSY TOOL COMPANY**  
Plainville, Conn.

**Booth No. 1922**

**LAST WORD SALES CO.**  
Detroit, Mich.

**Booth No. 601**

**New Products:** Wheel dressers in three models; Model A has 3.400 center height and permits dressing at the base of wheel or a point of contact, allowing use of wheel guard and dust collector. Model B, 2.600 center height, for smaller surface grinders. Dresses male radii to 1" and female to 2". Model C incorporates a tilting feature designed to compensate for compound angles involved in grinding form tools. Gray-Grimes steady rests give support from the rear and underneath the workpiece; Samson offset boring chuck for heavy duty operations.

**NEW**

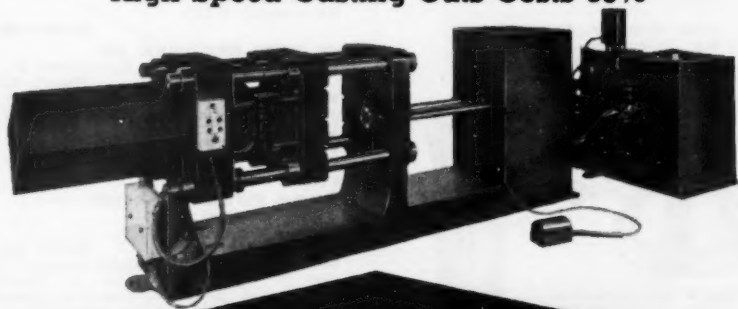
## HARVILL Heavy Duty Cold Chamber Die Casting Machine

*Model* HD-303

For Casting \_\_\_\_\_

*Aluminum  
Magnesium  
Brass*

**High Speed Casting Cuts Costs 80%**



**Die Casters—Check These Harvill PLUS Features:**

- ✓ Independent Hydraulic Power Unit
- ✓ Ruggedly Built, Safe to Operate
- ✓ Timer Controlled, Safety Interlocked
- ✓ Easy to Install and Maintain
- ✓ Simplicity of Operation—Ordinary Personnel Operate Unit Efficiently

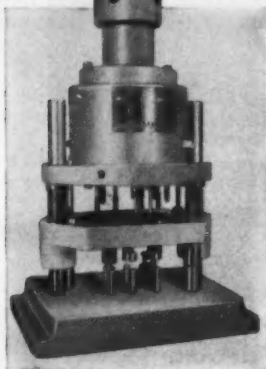
*write for catalog and complete details*



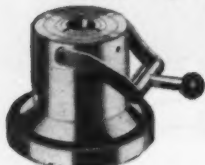
**H. L. HARVILL MFG. CO.**  
CORONA, CALIFORNIA

# SEE ZAGAR TOOLS

at work—Booth 1620  
ASTE SHOW



Zagar 15-spindle, 7" dia. Gearless Drill Head mounted on Zagar standardized drill jig drills 15 holes in aircraft part.



Zagar 2" holding fixture.



Zagar 1" indexing fixture.

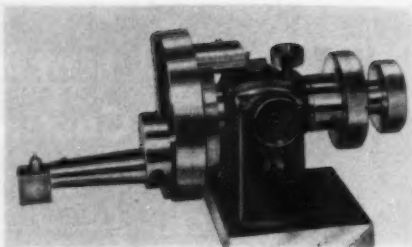


Zagar 5-C pull type collet.

ZAGAR TOOL, Inc., 24000 Lakeland Blvd.

Cleveland 23, O.

**Zagar** TOOLS For  
INDUSTRY  
and SPECIAL MACHINERY



Wheel dresser  
Last Word Sales Co.

**LATROBE STEEL CO.**  
Latrobe, Pa.

Booth No. 1527

**New Products:** XL—high speed tool steels with "built-in" lubricants; FM—improved high carbon-high chromium die steels with free-machining properties.

**Personnel:** Company sales officials, district sales managers and metallurgists.

**K. O. LEE COMPANY**  
Aberdeen, S.D.

Booth No. 842

**THE LEES-BRADNER CO.**  
12120 Elmwood Ave., Cleveland 11, Ohio

Booth No. 912

**Personnel:** J. A. Bradner; R. F. Myers; J. H. Bradner; H. C. Warner; G. A. Viscomi; C. V. Joecken.

**Products:** Cri-Dan "B" single point threading machine features speed, versatility, economy.

**LEHIGH FOUNDRIES INC.**  
(Air Control Div.)  
Easton, Pa.

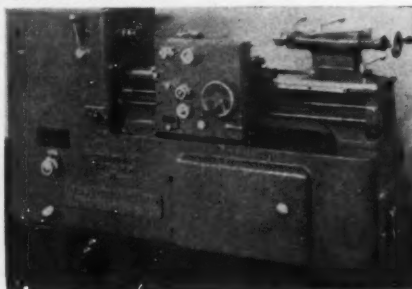
Booth No. 1355

**Personnel:** Ole Windfeld-Hansen; Richard F. Crannell; Alvin A. Shumann; plus sales and engineering personnel.

**New Products:** Lehigh tracer tool, profile tracing lathe attachment.

**Other products:** Lehigh air valves, cylinders, motors.

**Threading machine**  
Lees Bradner Co.



**Again ACE sets the pace!**



Here's a New  
**"PACKAGE DEAL"**

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DRILL BUSHINGS**

Never before has there been  
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✓ BETTER DESIGN	OF A.S.A. AND OTHER STANDARDS, plus SPECIALS
✓ SUPERIOR MICROFINISHES	✓ COMPLETE QUALITY CONTROL
✓ PRECISION WORKMANSHIP	✓ TRIPLE-CHECKED with Standard Methods plus
✓ MADE BY BUSHING SPECIALISTS	DIMENSIONAL AIR GAUGES • SUPER MICROMETERS
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✓ FASTER DELIVERY	✓ LARGER AVAILABLE STOCKS IN PRINCIPLE AREAS.

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CONVENTION CENTER - PHILADELPHIA - APRIL 26-30**

**ACE DRILL BUSHING CO., INC.  
5407 FOUNTAIN AVE., LOS ANGELES 29, CALIF.**



**LINDBERG ENGINEERING CO.**  
Chicago, Ill.

Booth No. 1231

**New Products:** Redesigned high frequency induction heating unit, Model LI-SA-1, for soldering, brazing and light heat treating applications (illustrated). Improvements include heavier sheet steel cabinet, indicating lamps relocated to front and less water consumption from new system.

**LEMPCO PRODUCTS, INC.**  
Bedford, Ohio

Booth No. 1155

**LIPE-ROLLWAY CORP.**  
Syracuse, N.Y.

Booth No. 726

**Personnel:** E. S. Mariotte, Specialist; Gerald Lanphere, Lab. Asst.; Harry Wulliez, Asst. S.M.; Bernard C. Harney, Development Eng.; A. Alven, Gen. S.M.; Joseph Sudlik, Sales.

**Products:** Automatic magazine loading (AML) bar feed operating with a Brown and Sharpe automatic screw machine. Pneumatic, the feed uses no fingers, feeds to last workpiece length, then ejects remnant; loading and positioning for first cut requires seconds. Seven models fit spindle bores of  $\frac{1}{8}$ " to  $1\frac{1}{8}$ ".

**F. J. LITTELL MACHINE CO.**  
Chicago, Ill.

Booth No. 1239

**LODDING INCORPORATED**  
Worcester, Mass.

Booth No. 537

**LOGAN ENGINEERING CO.**  
Chicago, Ill.

Booth No. 908

**LOVEJOY TOOL CO.**  
Springfield, Vt.

Booth No. 1421

**Products:** Milling cutters and flywheels feature interchangeability of shoes, wedges and blades in Type "A" milling cutters. Ten  $4\frac{1}{2}$ " dia. Type "A" housings shown. Type "J" milling cutter, 12" dia., has  $1\frac{1}{2}$ " dia. has blades,  $1\frac{1}{2}$  lbs. each. Carbide blades have a carbide tip  $1\frac{1}{4}$  x  $\frac{3}{4}$  x  $\frac{1}{8}$ " thick. Among 150-200 items are Type "B" side milling cutters, showing the interchangeability of their blades with the face mills; also Types "C" and "D" milling cutters, face mills, boring heads with integral shanks, and Type "S" cutters for various applications, flywheel and small diameter "Cutsall" cutters.

**LUFKIN RULE CO.**  
Saginaw, Mich.

Booth No. 515

**Personnel:** T. W. Wise, Asst. to Vice Pres.; Gordon Carpenter, Mgr., N. Y. Office; Robert Maitland, John White, John Torrell, Andrew Kirr, Charles Peterson, William Tufts, Otis Reader.

**New Products:** Master precision levels, machinists levels, Miti-Mite magnetic base tools, steel beam trammels, wood beam trammels.

**Other Products:** Complete line of precision tools, measuring tapes and rules.

**EDW. A. LYNCH MACH. CO.**  
Wynnewood, Pa.

Booth No. 1090



High frequency heating unit

Lindberg Engineering Co.

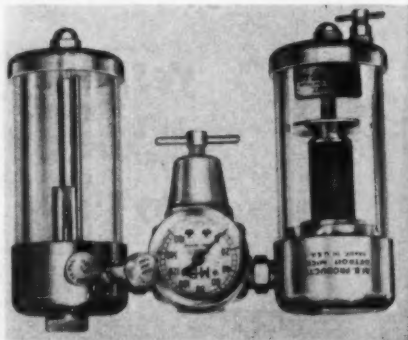
**M-B PRODUCTS**  
Detroit, Mich.

Booth No. 1439

**Personnel:** W. F. Congdon, Gen. Mgr.; I. Manheimer, S.M.; C. T. Rodger, Salesman.

**New Products:** Model 3-C "Sentinel of the Air Line" and Model W-3 "Guard of the Air Line"; a new and improved M-B automatic air line lubricator; positive shut-off of air without shutting down the air line by closing valves on the head.

**Other Products:** Automatic air line filter, air pressure regulator, junior pneumatic grinder, Model M-CR Super Speed pneumatic grinder, Model SS-SR, utility pneumatic grinder, Model U-TR, heavy duty pneumatic grinder, Model HD-CR, Spec-Dee pneumatic polisher, Model S-VT.



Air line lubricator

M-B Products

## MULTI-PURPOSE WONDER GRIP VISES

Tested for Performance to High American Standards

Immediate Delivery from New York Stock

MADE IN GERMANY

Low Competitive Prices

**4 STEPPED JAWS PERMIT CLAMPING** of rough castings, irregularly shaped, round, and tapered pieces accurately and quickly, eliminating need for special jigs or fixtures. Narrow stepped jaws allow free access to and measuring of work pieces and provide clearance for cutting tools. Small work pieces machined on three sides without reclamping. Easy and quick to mount and align on any machine. Holds rigid in any position without vibration. Various capacities and extra soft jaws available.

- Tapping Attachments
- Quick Change Chucks & Collets
- Wile-Grip Keyless Drill Chucks
- Milling Machine Arbors, Adapter, Arbor Spacers & Bearings
- Lathe Mandrels

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**M.B.I. EXPORT & IMPORT LTD.**

Bronx, N.Y.

**Booth No. 1821****MACHINE AND TOOL BLUE BOOK**

Wheaton, Ill.

**Booth No. 913****MACHINERY MAGAZINE**

New York, N. Y.

**Booth No. 530****MACHINERY & STEEL CORPORATION**

Grand Rapids, Mich.

**Booth No. 2152****MACKLIN SALES CO.**

Jackson, Mich.

**Booth No. 1409**

**New Product:** MM grinding wheel (illustrated) for carbide tools said to offer increased wheel life with faster stock removal, smoother finish. Fine, loose abrasive in pellet form in harder body.

**MACHINE DESIGN MAGAZINE**

Cleveland, Ohio

**Booth No. 1217****MACHINENFABRIK DIANAWERK**

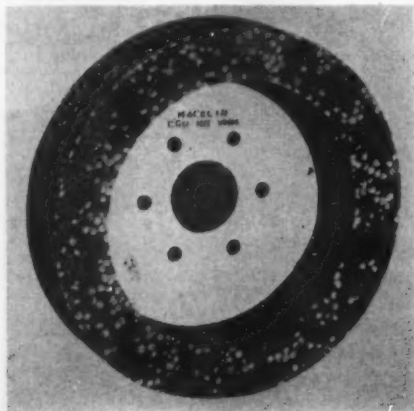
Germany

**Booth No. 1008****MACHINENFABRIK MICHAEL KAMPF K. G.**

Germany

**Booth No. 1008****Grinding wheel**

Macklin Sales Co.

**MADISON MFG. CO.**

Muskegon, Mich.

**Booth No. 960**

**Personnel:** H. F. Wulf; W. F. Bierema; C. Vanderlinde; W. Holloway; R. Teaford; C. Miller.

**New Products:** Deep hole drills, adjustable plug gages, trepanning tools.

**Other Products:** Rough boring bars, finish boring bars, bottoming bars, combination rough boring and finishing bars, rough boring cutters, finish boring cutters, bottoming cutters, grinding fixtures, deep hole drills, adjustable plug gages, trepanning tools.

**MAGNA ENG. CORP.**

Menlo Park, Calif.

**Booth No. 1834**

**Personnel:** Paul Jones, Ind. Div. Mgr.; Robert L. Chambers, Pres.; George M. Hines, East Div. Mgr.; Thomas J. Shiell, Field Rep.; James R. Butler, Field Rep.

**New Products:** Magna Drill with lead screw taper attachment and rapid approach power feed.

**Other Products:** Magna Drill, universal drilling machine, and its attachments; Shopsmith, multi-purpose woodworking machine.

**MAGNAFLUX CORPORATION**

Chicago, Ill.

**Booth No. 704****MANCO MFG. CO.**

Bradley, Ill.

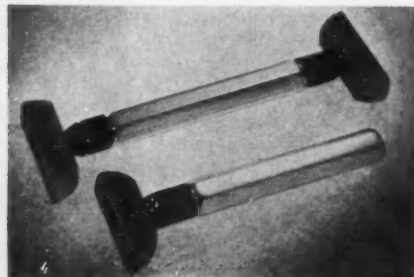
**Booth No. 2020**

**Personnel:** B. Evans Jasper, Vice Pres.; Jack W. Harvey, Sales Mgr.; Edgar M. Nash, Jr., Sales Rep.

**Products:** Portable hydraulic tools for cutting wire rope, rod, cable, shearing flat stock, angle iron, channel iron, punching holes, squeezing rivets.

**Bore gages**

Madison Mfg. Co.





# "Switching to NILSON 4 SLIDES Saved us \$17,656 on metal alone"

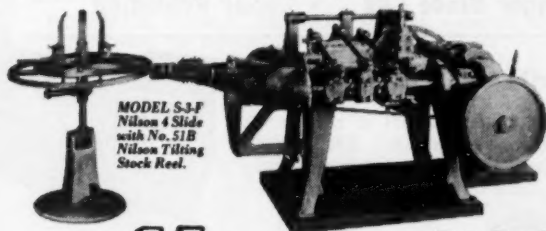


**Yes, simply by changing stamping methods, this NILSON Customer profited 4 ways:**

1. Production increased 80%.
2. 72% less metal used (per 4 million pieces).
3. Greatly improved quality with minimum of rejects.
4. Strengthened competitive position with greater profit margin.

You, too, can enjoy these advantages in producing your own wire forms and small metal stampings. Parts such as illustrated in the margin were straightened, fed, pierced, blanked, swaged, stamped or coined, cut-off and formed **AUTOMATICALLY** in **NILSON 4 SLIDES** in one quick precise operation. **ONE Machine. ONE Operator.**

**NILSON 4 SLIDES** available in wide range of sizes: forming Wire up to  $\frac{1}{8}$ " diam. in feeds to 32" max. and Metal Ribbon stock up to  $3\frac{1}{4}$ " wide. Press sections 5 to 30 ton capacity. Heavy Duty Types in 50 and 75 ton models.



**MODEL S-3-F**  
Nilson 4 Slide  
with No. 51B  
Nilson Tilting  
Stock Reel.

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NOTHING LIKE A

Write, Wire, Phone  
for full particulars.

**THE A. H. NILSON MACHINE COMPANY**

1511 Railroad Avenue • Bridgeport 5, Connecticut

Automatic Chain-Making Machines • Automatic Spring Forming Machines • Wire and  
Steel Bars • Saw Frames • Wire Straightening Equipment • Slide Parts for Presses

**MANHATTAN RUBBER DIV.**  
(Abrasive Wheel Dept.)  
Passaic, N. J.

**Booth No. 1953**

**Personnel:** W. H. Steinberg, S.M.; Lamar S. Hilton, Asst. S.M.; T. Carey, Sales Eng.; Herman Ahlers, Sales Eng.; F. E. Lyons, Field Eng.; H. D. Gilbert, Field Eng.; J. H. Ehrhardt, Field Eng.; S. R. De Laney, Field Eng.; John Basile, Field Eng.

**New Products:** Rubber and resinoid bonded cut-off wheels on two new machines; 18" and 20" diameter wheels demonstrated on a Wise abrasive cut-off machine, a chop stroke machine with a 10 h.p. motor heavy duty; Manhattan's new Poly-V power transmission belt drives wheel spindle at 2300 rpm.

**MANUFACTURERS ASSOCIATES**  
New York, N. Y.

**Booths Nos. 1008, 1721**

**Personnel:** Rene Boas, Hans Siebel, Paul Schaumburg, Spies, Lang.

**Products:** (Booth 1721) Michael Kampf mold copying milling and engraving machines, Model FK2a, vertical pantograph type, for small, medium and large workpieces up to 3300 lbs., ratio 1:1 to 1:4 also reverse (illustrated); Model B VI, engraving and milling machine for small to medium pieces and for drilling and milling; Model B III, unequal precision and finish, for typewriters, bank notes, etc.; cutter grinder SL, for pre-

cision grinding and lapping operation; Diana jig borer, medium size, general purpose; (Booth 1008) cylindrical grinders for universal, plain or internal grinding; vertical broaching machines, pulling capacity of 17,600 lbs., milling machines, boring mills, honing heads, multi-purpose metalworking machines, etc.

**MARAC MACH. CORP.**  
New York, N. Y.

**Booth No. 1201**

**New Products:** Schwartzkopff KBF 2 precision, self-locating, vertical boring and milling machine 50" x 30" traverse (illustrated); Werner Type 8103 manufacturing plain milling machine with automatic cycle and built-in backlash eliminator; Jung B7 internal grinder with internal profile dressing attachment; Werner No. 5 vertical milling machine with feed and speed preselection, fall and rise table, 42 speeds, 50 feeds, 40 h.p., 25,000 lbs. wt.; Raboma radial drill 14" column 5/3" arm with feed and speed preselector, centralized simplified controls; Beer radius polishing machine for polishing radii of drawing dies.

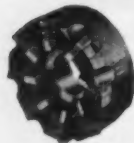
**Other Products:** Full range of Werner knee-type millers for toolroom and production use from sizes 0 to 5, vertical, plain and universal; Werner No. 270A cylindrical grinder for general purpose production and tool room use fitted with internal attachment.

## **VIKING** Specialists in Inserted Tools

- Low Initial Cost
- Lower Sharpening Cost
- Longer Blade Life
- Easier Reblading

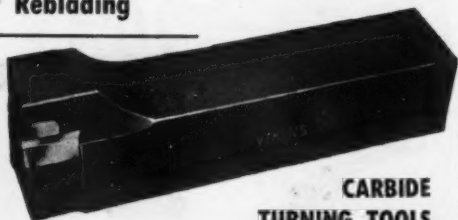
### **MILLING CUTTERS**

True dual adjustment of blades with no auxiliary shims, wedges, etc. Cutter can maintain original diameter and width thru life of blades.



Special designs of Multiple Cutter Gangs to customer specifications.

*Write for Catalog*



### **CARBIDE TURNING TOOLS with MECHANICAL CHIP BREAKER**

Separate chip breaker block and tool tip simultaneously locked in tool holder with one locking device. Insures no wedging of chip under breaker to fracture the tool.

**VIKING TOOL COMPANY**

SHELTON,  
CONN.





# MASTER TOOL ATTACHMENTS

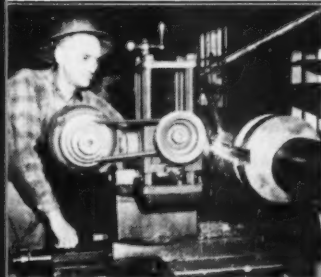
**Increase Production on  
LATHES, TURRETS, MILLS**

**Build Special Production Machines with  
Master Heads and Independent Feed-  
ing Mechanisms! Save Time and Money  
by Relieving Your Independent Machines!**

The Master attachment can be used profitably on many production operations. Mount it on your present equipment, lathes, turrets, mills, or use independently to perform additional operations in the same set-up. The basic milling unit with the above types of precision heads gives you facilities for milling, grinding, thread milling, boring, drilling, indexing, slotting, and keyseating, internal and external. Performs all operations for maintenance, tool room, and production at a minimum investment.



1. 90° Universal Milling Head
2. Hi-Speed Milling and Drilling Head
3. Deep-Hole Internal Grinder Head
4. Basic Milling Unit
5. Milling and Grinding Table
6. Universal Feed Table
7. Internal Grinder Head
8. External Grinder Head
9. Slotting and Keyseating Head
10. Geared Dividing Head



End Milling  $2\frac{1}{2}$ " Keyway in  $9\frac{7}{8}$ "  
Diameter shaft 22-ft. Long

## MASTER LATHE CONVERTER is available in four sizes:

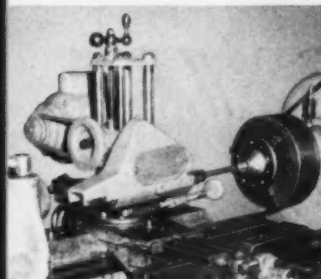
Model "C"  $\frac{1}{2}$  H. P. —  
9" to 13" Lathes  
Model "B"  $\frac{1}{2}$  or  $\frac{3}{4}$  H. P. —  
13" to 18" Lathes

Model "M" 1 to 3 H. P. —  
18" to 72" Lathes  
Model "H" 5 H. P. —  
24" and Larger Lathes

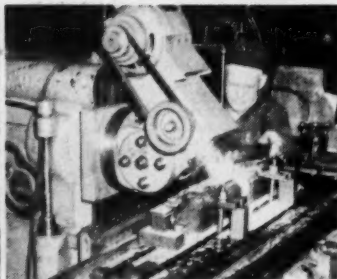
**THE REVOLUTIONARY NEW TURRET-MASTER** is a small, compact, powered tool head for turret lathes, which powers the tool for either on or off center milling, drilling or boring, can be assembled for horizontal or vertical spindles  $\frac{1}{2}$  to 3 H. P.

**THE GEARED VERTICAL MILL HEAD** amplifies operations of horizontal milling machines by combining independent power and double compounded swivel for angular positioning with capacities from  $\frac{3}{4}$  H. P. to 5 H. P.

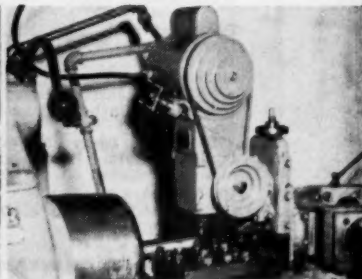
For the cost of one single-purpose machine, you can have several Master units producing. *Prompt deliveries!*



Master Slotting Head on Lathe  
Cutting Internal Taper Keyway



Geared Vertical Mill Head  
on a Horizontal Mill



Turret-Master End Milling  
Keyway on a Turret Lathe



**FREE**

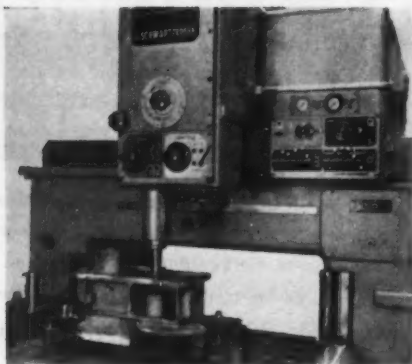
Ask your nearest Master dealer to show you  
the new 80-page Pictorial Operational Book.  
Write direct for free 24-page Catalog.

See Us at Booth 1454  
at the ASTE Show

## MASTER MANUFACTURING CO.

1302 EAST AVENUE A • HUTCHINSON, KANSAS, U.S.A.





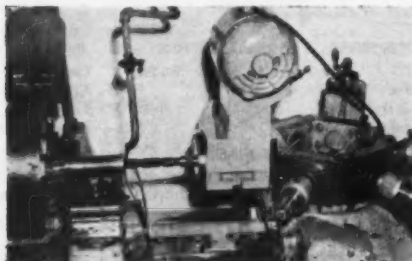
**Boring, milling machine**  
Marac Mach. Corp.

**MARTINDALE ELECTRIC CO.**  
Cleveland, Ohio

**Booth No. 747**

**MASTER CHEMICAL CORPORATION**  
Toledo, Ohio

**Booth No. 1920**



**Powered tool head**  
Master Mfg. Co.

**MASTER MFG. CO.**  
Hutchinson, Kan.

**Booth No. 1454**

**Personnel:** H. Lee Hill; A. W. Riley; Don Morton; N. C. Meskimen; George E. Viereck; S. J. Ashelford.

**New Products:** Turret-Master, a powered tool head for drilling and milling for turret lathes; Master vertical mill head, heavy duty, geared type; Model "H" master lathe converter, 5 h.p. (This is larger size lathe converter, previously available in three sizes from 1/3 to 3 h.p.).

**JAS. H. MATTHEWS & CO.**  
Pittsburgh, Pa.

**Booth No. 1978**

**MATTSSON MACHINERY INC.**  
Montclair, N. J.

**Booth No. 1070**

**MAYLINE CO., INC.**  
Sheboygan, Wis.

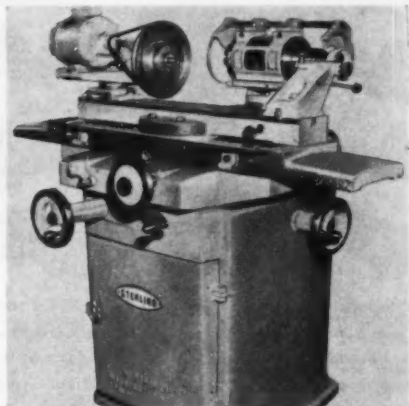
**Booth No. 215**

**MCCROSKEY TOOL CORPORATION**  
Meadville, Pa.

**Booth No. 1023**

**MCDONOUGH MFG. CO.**  
Eau Claire, Wis.

**Booth No. 2005**



**Model G-2 universal tool and cutter grinder**  
Mc Donough Mfg. Co.

**New Products:** A new universal tool & cutter grinder, Model G-2, has a new anti-friction table which replaces the flat and vee ways of the Model G table.

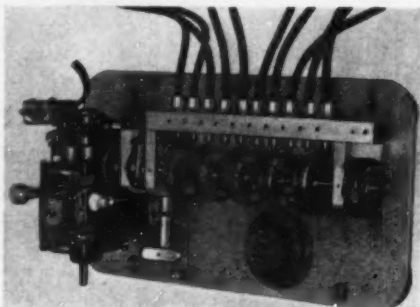
**Other improvements:** Changes in the operating controls, improved raising and lowering mechanism on wheel head, improved infeed mechanism.

**MEAD SPECIALTIES CO.**  
Chicago, Ill.

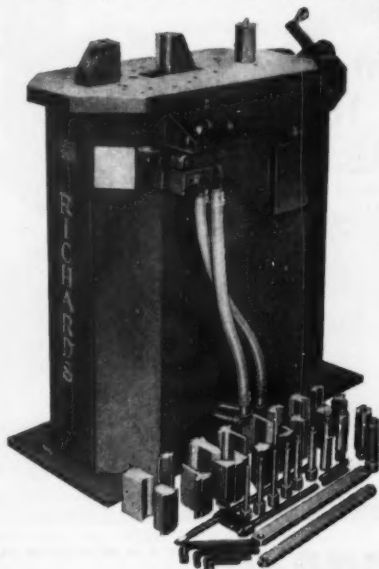
**Booth No. 1907**

**New Products:** FT-4 fingertip valve, a 4-way with 1/4" pipe thread opening; H-1-X Midget air-clamp cylinders of 1" bore, 1", 2", 3" stroke, spring return;

**Electro-pneumatic timer**  
Mead Specialties Co.



# MULTIFORM BENDERS



Big  
Brother

B  
Model

$\frac{1}{4}$ " x 4" Capacity  
Air Operated

Now a faster method of changing set-ups on the stationery head. The head is built of alloy steel for greater strength.

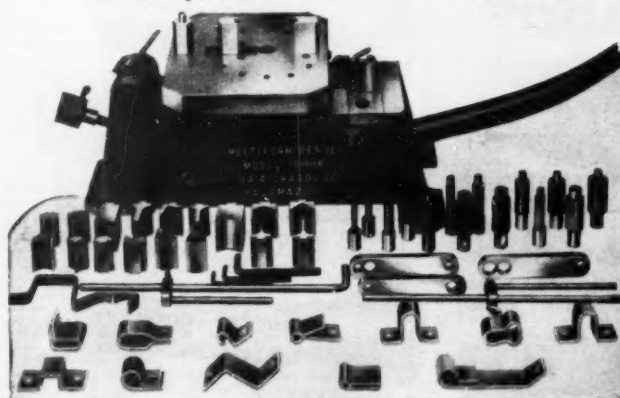
**Eliminate Special Tooling Cost**  
**Reduce Set Up Time**  
**Boost Production**

**IF**

*Fabrication is a  
Problem Solve it  
with a Multiform.*

**Bus-Bars - Brackets**  
**Stampings - Springs**  
**Steel Rule Dies etc.**

**J. A. RICHARDS COMPANY**  
**KALAMAZOO, MICHIGAN**

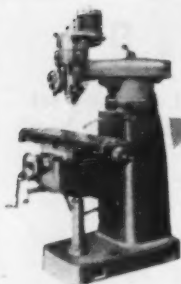


**Write today  
for literature**

**Hand and Air  
Models**

**At left is the No.  
5HDSB MULTI-  
FORM BENDER  
CUTTER, Capacity  
 $\frac{1}{8}$ " x  $1\frac{1}{2}$ ".**

**See these machines in operation Booth 1632 ASTE show, Philadelphia April 26-30.**



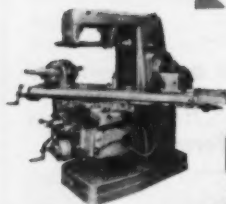
Pearson Model H  
Turret Type Miller,  
All Angle Head,  
Power Feeds to Spin-  
dle and Table.

Shef Ram Type Mill-  
or. All Angle head,  
2000 R.P.M. Spindle



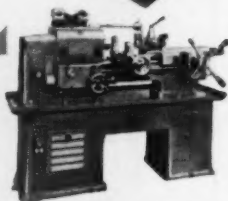
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**ASTE**

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friendly counsel from  
capable representatives.  
Be sure to stop in and  
see us.



Graham Dial Type  
High Speed Universal  
Miller, Rapid  
Traverse, No. 50 Tap-  
er in Spindle.

No. 3 Fletcher High  
Speed Universal Tur-  
ret Lathes, Power  
Feed to Turret and  
Cross Slide



**GRAHAM MACHINE TOOL CO.**  
19 Cleveland Place New York, N. Y.

**For Unvarying ACCURACY...**

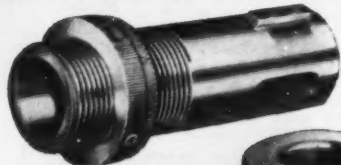
Standardize on **ECONOMY**

**"TRU-LOC"**

**Adjustable Adapters  
& Nut**

- ✓ **CONCENTRIC**
- ✓ **GROUND ACME THREADED BODY**
- ✓ **"TRU-LOC" NUT — Lock in Any Position**
- ✓ **WOODRUFF KEYWAY — Relieved**

All items in stock — immediate delivery assured. Write for latest Bulletin and Price List.



*Economy*

"TRU-LOC" Adapter  
Sleeves  
A.S.A. Drill Jig Bushings  
A.G.D. Plug & Ring  
Gages



**Economy**

**TOOL & MACHINE CO.**

1827 S. 68th St.

• Milwaukee 14, Wis.

electro-pneumatic timer controls action of air cylinders in infinite variety of sequences (illustrated) normally 12 single-acting or 6 double-acting cylinders; 4-way air valve of  $\frac{1}{2}$ " cap., convertible to 3-way.

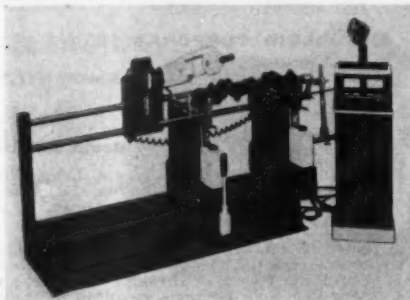
#### MERRILL ENG. LABORATORIES

Denver, Colo.

Booth No. 138

**Personnel:** Marcellus Merrill, President; Ralph T. Buscarello, S.M.; Lowell Erickson, Chief Engineer.

**New Products:** Model 704 Stewart-Warner electronic industrial balancing machine; for job type and short production run precision balancing.



Balancing machine

Merrill Eng. Laboratories

#### METAL CARBIDES CORP.

Youngstown, Ohio

Booth No. 425

**Personnel:** R. T. Beeghly; J. A. Ritz; P. H. Kechler; J. R. Workman; H. C. Cleverly; P. T. Lytle; J. L. Fuller; D. J. Montgomery; F. M. Winter, Jr.; G. E. Myers; R. T. Gleeson; A. B. Christman; C. Roman; F. C. Thompson; G. R. Brisben; W. E. Burke; J. R. Weiss; G. H. Clegg; C. S. Stelmack; S. A. Ernst.

**New Products:** Talide heavy metal, Klamp-Lok toolholders, and large tungsten carbide work rolls for cold rolling mills.

**Other Products:** Tungsten carbide cutting tools, drawing dies, centerless grinder blades, lathe centers, drill jig bushings, bar stock, rolling mill work rolls, diamond wheels, diamond wheel dressers, and heavy metal.

#### METAL CUTTING TOOLS, INC.

Rockford, Ill.

Booth No. 2124

**Personnel:** Bruce Miller; Ray Ambrose; Edwin Walker; Arthur Getts; W. Kyle Young; A. R. Humble; J. B. Savery; C. T. Terpo; T. H. Wallace; H. L. Henchey.

**Products:** Pin drive, clutch drive and stub taper counterbore, countersink

## Now! Cut Your Carbide Grinding Costs

With Precision Economy Diamond Wheels



featuring **P.S.M.**

Steel Bond

Here is a new line of Steel Bonded diamond wheels for offhand and chip breaker grinding, mounted on plastic centers.

These wheels have proven to . . .

- ★ last longer than other metal bonded wheels (2 to 4 times longer)
- ★ grind cooler, either dry or wet
- ★ remove stock faster

New plastic centers absorb almost all vibration . . . giving a smoother grinding action.



## THESE ARE THE FACTS!

Precision "Economy Wheels, Type D&WHC-6", grind tools at an average cost less than 1¢ wheel wear per tool.

Precision "Economy" Chipbreakers, Type DIT, grind at a cost of 2/3¢ wheel wear per tool.



Use **POT** Reinforced Resinoid Line . . .

. . . specially designed for high production grinding using the PLUNGE CUT GRINDING METHOD. They remove carbide faster at a lower cost!

Write or phone for a free demonstration in your plant.

**PRECISION DIAMOND TOOL CO.**

EEGIN, ILLINOIS

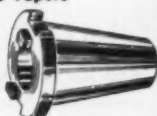
## Grand offers . . . Arbors, Adapters & Accessories



Milling Machine Arbors  
No. 40 and No. 50 Tapers



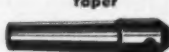
Collet Adapters  
No. 40 and No. 50 taper  
for No. 21 B&S collets



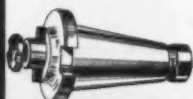
Adapters  
No. 50 to No. 40  
taper



Shell Reamer Arbors  
straight and taper  
shank



End Mill Adapters  
B&S and Morse  
tapers



Shell End Mill Arbors  
No. 40 and No. 50  
tapers



End Mill Adapters  
No. 40 and No. 50  
tapers



Adapters No. 40 and No. 50 tapers  
to B&S and Morse tapers



Running Bushings  
hardened and ground  
with keyway



Arbor Spacers  
hardened and ground  
with keyway

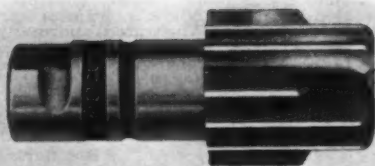


Milling Machine Arbors B&S tapers

SEE US AT THE A.S.T.E. SHOW  
BOOTH No. 1913 — APRIL 26-30

Catalog and Prices on Request

**Grand** Tool and Supply Co.  
176-F GRAND ST. N. Y. 13, N. Y.



Countersink  
Metal Cutting Tools Inc.

and special end cutting tools; 2-piece core drills, backspotfacers and drivers; TCT counterbore, countersink and special end cutting tools.

**METALLOID CORPORATION**  
Huntington, Ind.

Booth No. 717

**METAL REMOVAL CO.**  
Chicago, Ill.

Booth No. 1446

**Personnel:** Charles E. Davis, Donald M. Wetherald, Herbert Chayes, Dr. Alexander Blakely, Sydney Andrews, E. A. Michals, Henry Gianatassio.

**New Products:** "Ultra-Flex" variable speed grinder (illustrated), air turbine grinders, Flextex abrasive wheels and depressed center discs, resinoid mounted grinding wheels, router bits for aircraft industry, abrasive segments, hydraulic copying shaper, universal grinder, centerless grinder.

**Other Products:** Pres-On abrasive discs, end mills, carbide burrs, vitrified mounted grinding wheels.

Hand grinder  
Metal Removal Co.



# Beloit

## EQUIPMENT For Your Plant

### COMBINATION PUNCH

### BAR SHEAR

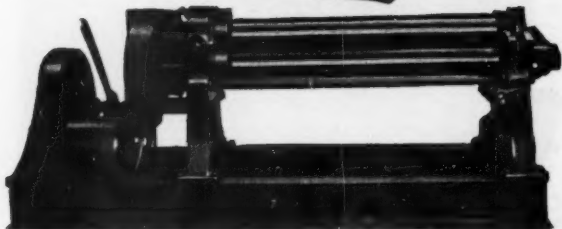
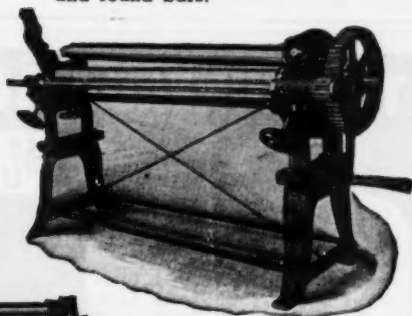
### ANGLE SHEAR AND NOTCHER

A versatile machine with many applications. Used to shear, mitre, notch and cope angles . . . shears flat and round bars . . . punches to the center of 10" without change of setup!



### COMBINED POWER PUNCHES and SHEARS

Made in 7 sizes to meet practically every production need. Standard equipment includes punching attachments, adjusting stripper, back gauge and shear blades for flat and round bars.



### SLIP ROLL HAND FORMING MACHINES

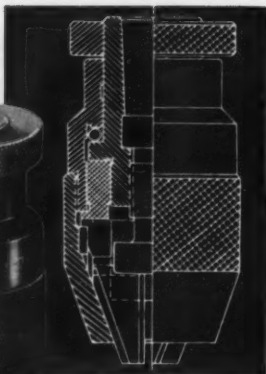
Made in 31 bench and floor type models, single and double back.

### INITIAL TYPE BENDING ROLLS

For quick forming of sheets and plates into cylindrical rolls.

**HENDLEY &  
WHITTEMORE CO.**  
100 Blackhawk Blvd.      Beloit, Wis.





**Superior  
Performance  
Warranted!  
Write us!**

## THE MICROTTRUE COMPANY

149 Church Street

Tel.: WO 2-4867

New York 7, N. Y.

## The ALBRECHT DRILL CHUCK

### PERFORMANCE IS THE PAYOFF!

... and from jig borer to line press, the ALBRECHT chuck outperforms the field ... pays off in drills, time, precision.

- Drill life doubled ... Albrecht ends drill slippage and scored shanks, drills last twice as long.
- Reliable hand operation at all times ... The "neveralip" ALBRECHT makes hand clamping and release routine.
- Unmatched accuracy sustained ... conventional drill chuck runout a thing of the past!

## TAP-THREAD GAUGE or ASSEMBLE

with this

**MULTI-PURPOSE  
PORTABLE UNIT**

PRESS to tap, gauge or assemble ~ PULL to reverse. Thousands of these compact friction drive machines are finding new uses. Reverses 40% faster. If you hit a hard spot, driving friction slips to warn you to back up, clean away the chips, and make a new start.

For complete details ~

- ASK FOR BULLETIN T. M. 2



Above 5/16" bench style TAPPER with 1/4 hp. motor, complete with accessories shown. Other sizes available in bench, column or pedestal mountings.

**RICKERT**



**SHAFFER CO.**

613 WEST 11th STREET

ERIE, PENNSYLVANIA, U.S.A.

**MERZ ENGINEERING, INC.**  
Indianapolis, Ind.

Booth No. 306

**W. F. MEYERS COMPANY**  
Bedford, Ind.

Booth No. 701

**MICHIGAN TOOL CO.**  
Detroit, Mich.

Booth No. 1609

**Personnel:** M. R. Anderson, P. F. Zerkle,  
I. R. Spangler, C. E. Eaton.

**New Products:** Gear rolling fixtures.

**MICROMETRICAL MFG. CO.**  
Ann Arbor, Mich.

Booth No. 229

**Personnel:** Frank W. Kabat, Sales Supt.;  
Bernard W. Poland, Arnold W. Loyd,  
W. Dale Smith, George Haber, Jr., Gordon  
McPhail, Field Representatives;  
Ray Carroll, Supt. Mfg. and Eng.

**Products:** Profilometer, direct-reading  
shop instrument for the measurement  
and control of surface roughness in  
microinches; Anderometer, a high-speed  
shop instrument for measuring the  
characteristics of assembled ball bearings  
that result in noise and vibration;  
Wavometer, for shop measurement and  
control of waviness on small, symmetrical  
surface of rotation.



**Amplimeter**  
Micrometrical Mfg. Co.

**MICRO-POISE ENG. & SALES CO.**  
Detroit, Mich.

Booth No. 1905

**Personnel:** Joseph P. Lannen, Robert J.  
Lannen, E. J. Harmon, H. S. Mueller.

**New Products:** Micro-Poise static precision  
balancing machine, Model 9390  
(illustrated), is a general purpose machine  
for balancing flywheels, clutches,  
impellers, fans, pumps, brake drums,  
"V" pulleys, and many other rotating  
parts. Workpiece capacity is 16" diam-

## Designed for TOOL ROOM EFFICIENCY



### HUPPERT Heat Treating FURNACES

Range: 300°F to 2000°F.

Years of satisfactory operation in  
tool, die and machine shops, as  
well as laboratories have proven  
these furnaces to be ideal for  
production work. Huppert special  
features include High Temperature,  
Heavy Duty Kanthal ele-

ments — Multi-insulation —  
counterweighed and tight self-  
sealing door. Pilot lights indicate  
furnace operation. All connections  
factory installed, shipped ready for operation.

Model No.	Inside Dimensions			KW	Prices 220 volt single phase	
	Wide	High	Deep		with Huppert input controller	with electronic temperature controller
869	8"	6"	9"	4	\$280.00	\$480.00
11	8"	6"	12"	4	287.00	487.00
12*	8"	8"	12"	6	367.00	567.00
12A*	8"	8"	18"	9	471.00	671.00

\*For 2300° F. add \$95.00 to No. 12 and \$105.00 to No. 12A.  
No. 12A can be furnished for 3 phase at no additional cost.  
For floor model add \$50.00 to above prices.

\*Write for literature on  
complete line of  
furnaces and ovens.

**K. H. HUPPERT CO.**  
6845 Cottage Grove Avenue Chicago 37, Illinois  
Manufacturers of Electric Furnaces and Ovens



**Balancing machine**  
Micro-Poise Eng. & Sales Co.

eter and 200 pounds. Optional calibration is to a 3 inch-ounce maximum in 0.2 inch-ounce increments, or to a 20 inch-ounce maximum in 1 inch-ounce increments. New design shields work from drafts, insuring fast, efficient operation. A vertical drill-press for correction on the machine is optional.

**MILFORD RIVER & MACHINE CO.**  
Milford, Conn.

**Booth No. 2105**

**Products:** Tubular rivets, split rivets, cold headed specialties, ornamental stampings, rivet and spot setting machines.

**MILL & FACTORY MAGAZINE**  
New York, N. Y.

**Booth No. 716**

**MILLER FLUID POWER CO.**  
Melrose Park, Ill.

**Booth No. 1360**

**Personnel:** H. Bruce Rasmussen, Paul Davison, W. S. Gibson, W. E. Bosselman, Ralph Hiller, K. C. Mosier, C. H. Ribble, John Frink, Roland L. Kendrick, Paul Lonergan, James C. Sprague, Steve Stiles, Michael H. Terry, John E. Vass, Roy G. Wilkes, Chester W. Yant.

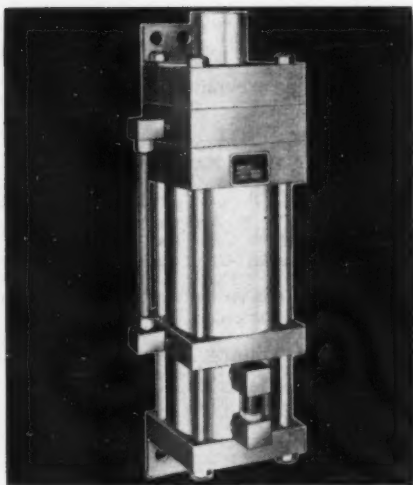
**New Products:** Miller "stock" air and hydraulic cylinders.

**Other Products:** Miller air cylinders, high pressure hydraulic cylinders, fluid pressure boosters, air-oil tanks.

**A. MILNE & CO.**  
New York, N. Y.

**Booth No. 429**

**Personnel:** C. W. Schefer; J. M. Smith; W. P. Cooney; F. D. Illingworth; C. C. Pinkney; H. S. Hoyt; J. King Hoyt, Jr.



**Air booster**  
Miller Fluid Power Co.

**New Products:** New line of high production flat ground stock; high chrome-high carbon, air hardening tool steel in range of sizes, flat ground to minimum of .010 oversize, free of decarburization.

**Other Products:** Cold drawn pre-shaped sections; special shank steel; hollow die tool steels; extensive line of solid and hollow tool and die steels; accessories made from Milne steels.

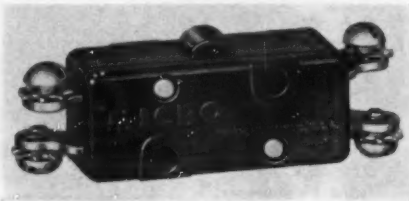
**MINNEAPOLIS-HONEYWELL**  
(Micro Switch)  
Freeport, Ill.

**Booth No. 1708**

**New Products:** Two-circuit heavy duty limit switch; two-circuit basic switch. Former combines precision, two-circuit switching with ruggedness. Latter is  $\frac{1}{2} \times \frac{1}{2} \times 1\frac{1}{4}$  inches. Suited to reversing circuit applications where space is at a premium.

**Other Products:** Complete line of snap-

**2 circuit basic switch**  
Minneapolis-Honeywell



# AMES

## ...the Preferred Small Hole Gauge No. 36

Skilled and unskilled employees can use this superbly designed two-point contact gauge to make quick, accurate, *impersonal* inspections of small holes for size, taper and roundness.

The spherical contact point automatically centers itself and indicates the true diameter at the point measured.

The Ames Small Hole Gauge No. 36 checks holes with  $3/16"$  to  $1"$  diameter, up to  $2"$  deep. Longer lengths and special contacts to check irregular recesses, splines, available.



Ames No. 15  
Jaw Gauge

Ames No. 25  
Pocket Thickness  
Measure



Ames No. 13  
Dial Comparator



Ames No. 516  
Dial Micrometer

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Representatives in  
principal cities.

**B. C. AMES CO.**

28 Ames Street  
Waltham 54, Mass.

Mfg. of Micrometer Dial Gauges • Micrometer Dial Indicators.

## American Standard Perforators

For Improved Production  
Schedules - Reduced Die  
& Maintenance Costs.

Precision Ground  
For High Pro-  
duction. In  
All Sizes  
.040 to  
.875



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The Dies  
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Specify Them In  
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Available From Stock  
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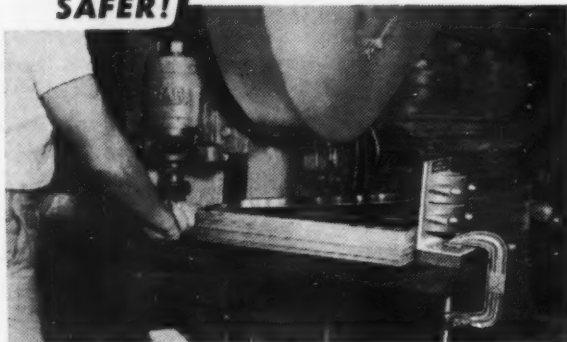
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**AMERICAN STANDARD  
PERFORATORS**

4878 W. GRAND AVE., CHICAGO 39, ILL.

**FASTER!  
SURER!  
SAFER!**

SEPARATIONS OF SHEET STEEL  
AND LAMINATIONS.



G. S. BLODGETT CO., Inc., Burlington Vt., manufacturers of baking and roasting ovens say "... many of our steel parts in fabrication are being handled more economically and with greater ease. We consider our BASCOS a good investment."

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Basco Catalog

Distributor Inquiries  
Invited.



**Manufacturing Co.**  
13 Woodside St.  
Stamford, Conn.



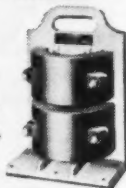
## BASCO SEPARATORS

BASCO SEPARATORS reduce cost of handling, increase production, lessen injuries, save gloves, stop double feeding, lift polished or painted parts without scratching. **SEPARATES GREASY, ROUND, SQUARE NESTED OR ODD SHAPES**

Permanence of  
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**FIVE  
STANDARD  
MODELS**

to simplify  
handling of  
sheet steel up  
to 1/2" plate,  
stock width to  
48", stock  
heights to  
10 1/2"



See the BASCO Separator in  
Action—ASTE Show—Booth  
2115, Philadelphia, Week of  
April 26th.

action switches, basic switches, heavy duty limit switches, heavy duty explosionproof limit switches, splash-proof switches, die cast enclosed basic switches, and enclosed high capacity switches.

**MISAL MACHINERY, INC.**  
New York, N.Y.

Booth No. 1919

**MODERNAIR CORP.**  
San Leandro, Calif.

Booth No. 832

**New Products:** Improved double-acting air return cylinder, may be operated by use of a three-way valve and still allow throttling to provide for control of work and of the return stroke; the return stroke is made at approximately 60% efficiency; after the initial charge of air, the cylinder operates on the same number of cubic feet of air as a spring return cylinder. In effect, it is a double-acting cylinder—requiring less air than needed to operate a double-acting cylinder. Hard-drawn, relief-annealed brass tubing, a stainless steel piston rod and aluminum head construction produce a cylinder lighter in weight, yet designed to give longer service than conventional type cylinders. Since there is no metal to metal contact, no moving parts to wear, except "O" rings, replacement of "O" ring packing completely renews the cylinder. Elimination of the spring return element also results in shorter overall dimensions, a significant advantage where installation space is limited. Available in 1½", 1¾", and 2½" bore sizes.

**MODERN INDUSTRIAL ENG. CO.**  
Detroit, Mich.

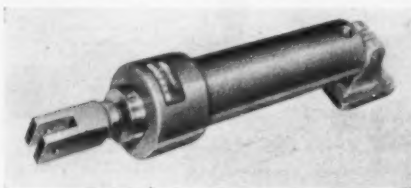
Booth No. 1617

**New Products:** Three universal machines for deburring and chamfering: two machines for external gears and a third for internals. Both a single and a double-station external Burr-Master, each chamfering the entire tooth form of both spur and helical gears as well as external straight and involute splines in operation.

**MODERN MACHINE SHOP**  
Cincinnati, Ohio

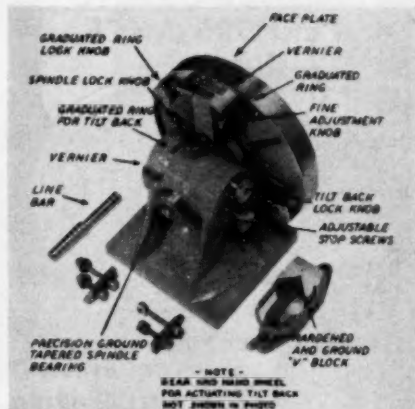
Booth No. 1638

**Air return cylinder**  
Modernair Corp.



April, 1954

## The COOK "MULTICHECK"



Standard Equipment as shown includes "V" block and clamp, toe clamps, bolts and alignment bar with No. 3 Morse Taper to fit spindle.

## CUT LAYOUT AND INSPECTION COSTS

Realizing the great need in the machine tool trade for some method of speeding up the tedious methods of figuring angles, setting up sine bars, etc. and in order to layout and check precision work, we have designed and can now offer you the Cook Multicheck. As a precision measuring instrument, the Cook Multicheck ranks in importance with the Vernier Caliper and the Height gage.

To enable you to cut your layout and inspection costs, let us quote price and delivery for the Cook Multicheck.

Write to:

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2327 DELAWARE STREET  
ANDERSON, INDIANA



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INSURE TOP  
METALWORKING  
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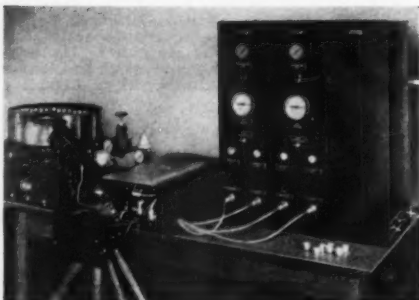
Company Name

Address

City  State

Chicago Manufacturing and Distributing Co.  
1906 West 46th St., Chicago 9, Illinois

**CHICAGO MANUFACTURING  
AND DISTRIBUTING CO.**



**Pneumatic sorting gage**  
Moore Products Co.

**MOHAWK TOOLS, INC.**  
Montpelier, Ohio

**Booth No. 2003**

**MOORE PRODUCTS CO.**  
Philadelphia, Pa.

**Booth No. 136**

**Personnel:** H. D. Valentine, E. D. Bachand, H. C. Webster, W. B. Miller, R. H. Owens, L. E. Henryson, G. H. Stillwell.  
**New Products:** All-pneumatic automatic sorting gage. (Model exhibited as furnished to Superior Steel Corp. for inspecting two dimensions on partly formed small arms projectiles.)

**Other Products:** Moore pneumatic comparator gages for measuring ID-OD and other dimensions.

**MOORE SPECIAL TOOL COMPANY, INC.**  
Bridgeport, Conn.

**Booth No. 1443**

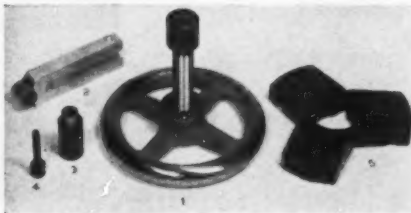
**MORTON MACHINE WORKS**  
Detroit, Mich.

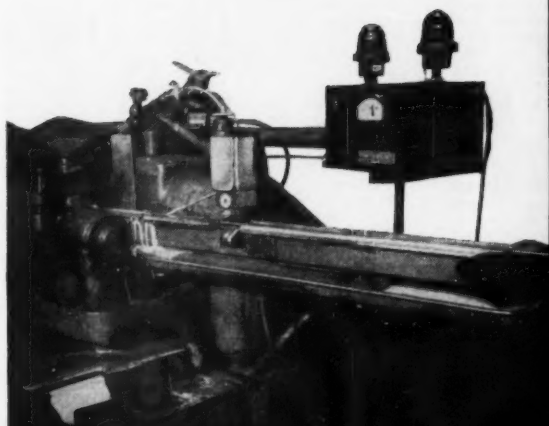
**Booth No. 113**

**Personnel:** Arch Morton, Owner; Don Morton.

**New Products:** Adaptations, modifications of standards to fit specific jobs. Illustration shows 6" hand wheel used in place of hand knob for a swivel screw assembly. Screw made from brass stock.

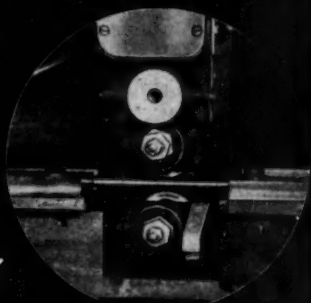
**Standards modifications**  
Morton Machine Works





*Continuous*  
**ON-MACHINE  
GAGING  
of GROUND  
BAR STOCK**

*with*  
**PRATT & WHITNEY**  
*Electrolimit Gages*



Developed originally for rolling mills, the P&W Electrolimit Model D Gage is here applied to continuous, on-machine gaging of precision, centerless ground bar stock. The P&W Light Signal Control used in conjunction with the gage, gives a continuous, accurate reading; light signals indicate oversize or undersize. Important benefits include:

- **BETTER CONTROL OF GRINDING ACCURACY** . . . with immediate correction before work is spoiled.
- **FASTER PRODUCTION** . . . operator continuously sees size variations due to wheel wear and makes corrections during grinding.
- **GREATER OPERATOR CONVENIENCE** . . . indicating meter easy to read; corrections easier, faster; extra gaging operations eliminated.

SEE IT AT THE A.S.T.E. SHOW PHILADELPHIA, APRIL 26-30 P&W BOOTH 1531

Bring your special gaging problems with you.

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**PRATT & WHITNEY**

DIVISION NILES-BEMENT-POND COMPANY

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FACTORY-TRAINED  
ENGINEERS  
IN PRINCIPAL CITIES

MACHINE TOOLS  
•  
CUTTING TOOLS  
•  
GAGES

MTBB-54

**Other Products:** Standard line of fixture clamps, components; cam and jack lock assemblies; swivel screw assemblies; soft chuck jaw blanks and components such as bolts, button cams, button jig feet, clamp rests, straps, handles, knobs, wheels, keys, nuts, rest buttons, rest pads, screws, studs, washers, special spherical washers, etc.

**MOREY MACH. CO. INC.**

New York, N. Y.

**Booths Nos. 967 and 970**

**Personnel:** Leonard Morey, Robert Morey, Dudley T. Himoff, A. R. Grillo, Julius Saloway, Joseph L. Knopf, Thomas Craig, Jr., Clarence Moss, William Peters, E. Payson Blanchard.

**Products:** Ajax radial drill, Wormser Ironworker, Simplex lathes, Selectronic lathe, David Brown gear hobber, Knutty jig borer, Hero millers, Steinel millers, Steinel multi-spindle drill, ABA surface grinder, Hahn & Kolb RH 25 hand screw machine, Morey No. 4 turret lathe, Morey No. 5 turret lathe, Morey No. 50-M profiler & milling machine.

**MOTCH & MERRYWEATHER MACH. CO.**

Cleveland, Ohio.

**Booth No. 731**

**Products:** Featuring 84" dia. Triple-Chip segmental circular saw blades. Other products include Kroslok face milling cutter, Triple-Chip segmental and solid cut-off blades, Triple-Chip slitting and slotting saws and special related subjects.

**NATIONAL BROACH & MACH. CO.**

Detroit, Mich.

**Booth No. 1501**

**Personnel:** W. S. Praeg, Pres.; B. F. Bregli, V.P.; D. P. Smith, Asst. Sec. Treas.; T. S. Gates, Chief Eng.; Harold Ashton, Chief Ser. Eng.; L. B. Allison, Ed Ball, Al Forberg, J. A. Psenka, W. L. Shannon, Sales Engineers.

**HSS broaches**

National Broach & Machine Co.



**New Products:** Pair of solid high speed steel, Red Ring broaches that produce at high production rates in single passes without subsequent finishing operations (illustrated); 70" long rougher and 36" long finisher, produce a 66-tooth, 5 1/4" o.d., 1 1/4" wide, 14 pitch, 20° pressure angle, 20° helix angle internal gear for an automatic auto-transmission.

**Other Products:** Illustrations of wide variety of automatic loading fixtures for single and dual ram broaching machines as well as several sizes and types of rotary gear tooth shaving cutters, gear laps, master gears, and gages for broached shapes including splines, holes and irregular contours.

**NATIONAL TOOL CO.**

Cleveland, Ohio

**Booth No. 1739**

**Personnel:** H. W. Barkley, J. B. Clough, H. M. Minor, N. Wilhelmy, M. W. Conner, S. Engberg, A. Erhardt, Jr., A. Erhardt, Sr.

**Products:** Typical examples of special cutting tools made to customers' specifications; Bell and Howell pocket comparator.

**KARL A. NEISE**

New York, N. Y.

**Booth No. 2004**

**Personnel:** Karl A. Neise, Miss Agnes Hofman, Louis Keller, William Breuning.

**New Products:** Wohlhaupter "Master-head" facing & boring heads; Marchner "Boremaster"; Schnorr disc springs.

**NELCO TOOL COMPANY, INC.**

Manchester, Conn.

**Booth No. 1413**

**NEW EQUIPMENT DIGEST**

Cleveland, Ohio

**Booth No. 1217**

**NEW METHOD STEEL STAMPS, INC.**

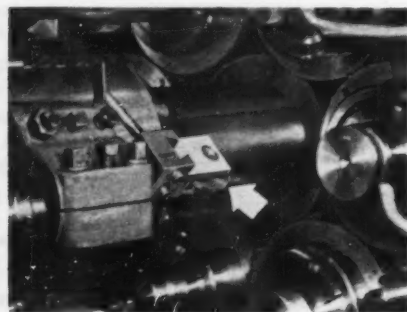
Detroit, Mich.

**Booth No. 1613**

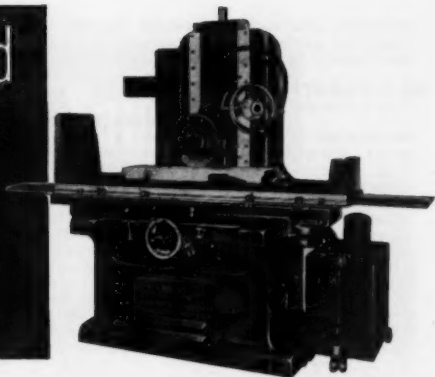
**Products:** Model 500-C for marking outer diameters of parts; Model 600-E for marking on the end face; Model 700 for both marking on the O.D. and cutting off the part. This new Model 700

**Model 600-E automatic rol marker**

New Method Steel Stamps, Inc.



When the need  
is for **SPEED**  
and  
**PRECISION**



*You need a*  
**GRAND RAPIDS GRINDER**

Here is extra value, extra accuracy, extra high-speed performance. Every Grand Rapids Hydraulic Feed Surface Grinder has a one-piece column and base for vibrationless rigidity and permanent alignment between cross travel ways and upright headways. Both longitudinal table travel and cross feed are hydraulically operated. The wheel head is powered for rapid vertical travel. *The model 55 has longitudinal table speed of 125 fpm.!*

All parts are machined to micrometric tolerances and precision assembled for perfect freedom of action and entire elimination of play. That's why 6 out of 10 of these machines are sold to firms already using Gallmeyer and Livingston grinding machinery.



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Full Facts Today!**  
*We'll answer  
within 24 hours*



**GALLMEYER & LIVINGSTON CO.**  
405 Straight Ave., Grand Rapids, Mich.

*Please send the following literature without obligation:*

- ☐ Grand Rapids Surface Grinder Catalog  
☐ Grand Rapids Universal Cutter  
and Tool Grinder Catalog

NAME \_\_\_\_\_

POSITION \_\_\_\_\_

FIRM \_\_\_\_\_

FIRM ADDRESS \_\_\_\_\_

permits automatic marking during the machine cycle without requiring an extra station for the marking operation.

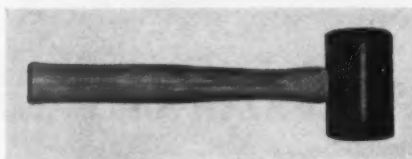
**NEW PLASTIC CORP.**  
Los Angeles, Calif.

**Booth No. 2114**

**Personnel:** F. S. Jahn, Pres.; J. A. Carmien, Vice Pres.; John Schmidt, Chief Eng.; Max. T. Graves, G. Mark Foos, Charles Rice, and William W. Bulkeley, District Engineers.

**New Products:** Metal forming Nupla hammer tips (new special shapes); Nuplomatic rivet gun adapter for metal forming; Nupla mallets, slapper flexible oil can and drive punch.

**Other Products:** Complete Nupla hammer line with interchangeable and replaceable Nuplaflex and Nuplan tips. "New Impax" will also be featured.



**Plastic hammer**  
New Plastic Corp.

**THE NEW YORK AIR BRAKE CO.**  
New York, N. Y.

**Booth No. 1226**

**Personnel:** B. Rosaer, S.M.; J. Scherer; D'r. S.M.; R. Murphy, Mgr. Tech. Ser.; H. Vander Kaay, Eng.; R. L. Firth, Sales Pro. Mgr.

**Products:** Hydraulic pumps, fluid motors, valves and cylinders; advanced design gear and vane pumps to 130 gpm and pressures of 2000 psi; fluid motors from 180 lb. in. to over 14,000 lb. in., feature high starting torques; new piston pumps in constant and variable types; hollow plunger valves in single and multiple units with integral pressure regulator and check valves; centrifugal, turbine and rotary plunger pumps; vacuum pumps.

**NIAGARA MACHINE & TOOL WORKS**  
Buffalo 11, N. Y.

**Booth No. 1242**

**New Products:** No. 5-24 deep throat lever punch and shear.

**Other Products:** Air actuated bar folder, multi-drive power table for rotary operations, air actuated squaring shears, electrically driven squaring shears, foot operated squaring shears, high speed circle shears, universal rotary machine, power slip roll former, hand tools.

**NICHOLSON FILE CO.**  
Providence, R. I.

**Booth No. 959**

**Personnel:** Joseph P. Casey; James M. Jaques; Edmond A. Neal, Jr.



**Lever punch & shear**  
Niagara Mach. & Tool Wks.

**Products:** Hand steel files and rasps, rotary power files and burrs.

**NICHOLS-MORRIS CORPORATION**  
White Plains, N.Y.

**Booth No. 1431**

**NIFE INCORPORATED**  
Copiague, L.I., N.Y.

**Booth No. 1926**

**NILES-BEMENT-POND COMPANY**  
**KELLERFLEX DEPARTMENT & PRATT & WHITNEY DIVISION**  
W. Hartford, Conn.

**Booth Nos. 1531 & 1535**

**NILSSON GAGE CO., INC.**  
Poughkeepsie, N.Y.

**Booth No. 202**

**NOBUR MFG. CO.**  
Burbank, Calif.

**Booth No. 1972**

**Products:** Hole deburring and chamfering tool for application to parts having line-drilled holes; Noburmatic tool has primary application to the deburring of holes drilled in sheet metal; back-countersinks and back spot facers for rapid production of back countersinking or back spot facing in non-ferrous metals.

**NOBLE & WESTBROOK MFG. CO.**  
East Hartford, Conn.

**Booth No. 520**

**New Products:** Model 50 P1 is a pneumatically operated rapid production marking machine which employs the roll-marking principle. In the roll-marking process the roll dies are used for marking flat work and flat dies for marking round work. Also to be introduced: a new dial type machine featuring a 12-station work carrier dial.

**Other Products:** Automatic numbering



## Prove It To Yourself!

**...You Can Now  
Obtain Precision  
Flatness, Finish  
and Parallelity  
in Production  
Quantities**



Many manufacturers of pumps, compressors, valves and other equipment containing liquids or air under high pressures are now using production lapping to great advantage—have eliminated gaskets in mating surfaces, have improved product performance. This has been made possible through the extreme accuracy of work produced by the Lapmaster in production quantities. Micro-inch finishes of 2 to 3 RMS are common. Surface flatness can be held to less than .0000116".

### **Use Our Free Laboratory Service to Determine Your Exact Needs**

To determine whether lapping can be practical and profitable for you, we maintain a laboratory for lapping sample parts. If you believe it offers possibilities we invite you to send prints of the parts, together with surface finish requirements and production desired. In addition send several parts for test lapping. We can then give you the facts on what you can expect from the Lapmaster. There is no obligation for this service.

### **A TYPICAL CASE**



Four Model 72" Lapmasters were installed in an automotive plant for lapping the joint faces on large castings. These Lapmasters are able to keep pace with the high production requirements of automotive plants because there is no downtime required for reconditioning the lapping plate. In addition, parts lapped by the Lapmaster

can be brought directly from the milling operation to lapping. Intermediate grinding operations are eliminated. Still another important feature is the fact that joint faces are lapped so accurately, gaskets can be eliminated in final assembly; the resulting metal to metal contact also eliminates distortion caused by the conventional use of gaskets.

### **Additional Data**

on the complete line of Lapmasters is available on request, also new information on Measuring Flatness.

Write for your copies today.

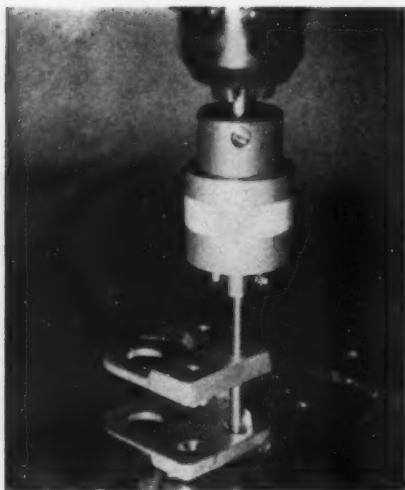


Crane Packing Company, Dept. BB-4, 1812 Cuyler Avenue, Chicago 12, Illinois

**JOHN CRANE**

**CRANE PACKING COMPANY**





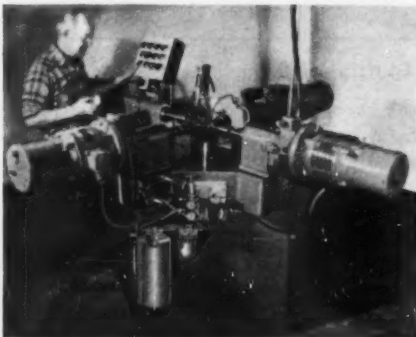
**Nobur back countersinks**  
Nobur Mfg. Co.

heads and marking dies. Also flat marking dies; hydraulic presses commonly used for marking permanent identification on name-plates, flat stock, ball bearing races, spindles, etc. Marking dies, for production marking on ferrules, spindles, tubes, rods; embossing and debossing dies, graduating dies, concave roll dies, steel type and hand stamps.

**NORD INTERNATIONAL CORPORATION**  
Orange, N.J.

**Booth No. 2059**

**Spray-Lube system**  
C. A. Norgren Co.



**C. A. NORGREN CO.**  
Englewood, Colo.

**Booth No. 712**

**Personnel:** J. M. Evans, J. A. Wilson, W. O. Hall, E. W. Roos, C. Neil Norgren, L. H. Norgren.

**New Products:** Norgren Spray-Lube systems for metal cutting operations, is designed to permit more efficient utilization of cutting and drawing compounds, thereby making it possible to increase cutting feeds and speeds and at the same time prolong tool life.

**Products:** Pilot-controlled regulators and other pressure regulators; Micro-Fog bearing lubricators and other oil fog lubricators; automatic-drain filters and other air line filters.

**NORTHWESTERN TOOL & ENG. CO.**  
Dayton 3, Ohio

**Booth No. 2122**

**Personnel:** E. J. Thomeczek; Wayne Cummins; Edward Hicks.

**New Products:** Tracing templates (illustrated), step clamps. Former used chiefly by tool designers in the layout work of jigs and fixtures. Condensed template covers 263 items in full scale on a single sheet 11 x 25 folded in two places to measure 8½ x 11. White on black background.

**Other Products:** Quarter turn screws, socket shoulder screws, jig feet (three types), fixture keys (six sizes), latch bolts (std. and long), spherical washers, spherical flanged nuts, strap clamps (two types), hardened nuts and washers, flanged nuts N/C & N/F, cut thread studs, tee-nuts (twelve sizes), coupling nuts, adjustable step blocks, star type hand knobs, hexagon type hand knobs, knurled head screws.

**NORTON CO.**  
Worcester, Mass.

**Booth No. 1430**

**Personnel:** Kenneth L. Bates; Robert H. Cannon; James A. Coleman; Fred L. Curtis; Ernest L. Gustafson; Frank G. Gustafson; Edward L. Hurst; Ralph M. Johnson; Enfried T. Larson; Arthur N. Johnson; Elliott D. Linton; Evan C. Luce; William J. Mahan; Oscar A. Nierendorf; Roger N. Perry; Donald L. Price; George A. Park; Edward J. Powers; C. Leonard Shaw; Russel A. Reed; Everett L. Sinclair; Dominic T. Taurone; David B. Tyler; Charles M. Wellons; Gustav J. Wickstrom; Irving W. Stanton; Leroy K. Behr; A. Watson Gough; Carl M. Nyden; Norman K. Russell; Frank A. Singer; N. Carl Steele; J. Stephen Anderson; Winton A. Vagades; Arthur T. Blomberg; John D. Laughrey; David H. Paul; Jack M. Esten; and Lester S. Eastman.

**Products:** Live demonstrations of tool grinding and barrel finishing; exhibit also includes diamond wheels, Crystolon K bond wheels for carbide grinding, Crystolon "Hot Rod" heating elements, Norbide dressing sticks, and refractory shapes for heat treating furnaces.



# croblox

## Your assurance of accuracy year after year

In precision manufacturing it is vitally important that the original accuracy of gage blocks be permanent—that they not become unreliable as a result of the wear characteristic of ordinary steel blocks. Production headaches due to such gage wear will be prevented when you use CROBLOX, Webber Gage Company's revolutionary development in gage blocks. CROBLOX (chrome carbide) gage blocks, due to their extreme hardness and resistance to corrosion, are not subject to "use wear." They remain accurate—they give permanent service.

May we send you literature describing CROBLOX, the finest gage blocks made—and—your insurance against dimensional inaccuracies.

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**AMERICAN SOCIETY OF TOOL ENGINEERS**  
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Only WEBBER in the U.S. employs Zeiss Opton Interferometer—selected by accurate that it detects dimensional variations as minute as one ten millionth of an inch.

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**GAGE BLOCKS**  
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**Largest exclusive manufacturer of  
precision gage blocks**

**OAKITE PRODUCTS, INC.**

New York, N. Y.

**Booth No. 1347**

**Personnel:** C. S. Anderson, W. M. Bliss, W. G. Boeuf, B. D. Clarke, E. D. Hallett, R. Heroux, J. M. Hite, H. P. Jacques, F. C. Tatum, J. S. Todd, E. G. Wolff, and E. F. Connolly.

**New Products:** Steel preserver, a rust preventive. Meets U. S. Government specification AXS 1759, Grade 1. Preserver has a flow point of 140° F. and its viscosity, in terms of Saybolt Universal seconds, is 116 to 119 at 70°.

**O'NEIL-IRWIN MFG. CO.**

Lake City, Minn.

**Booth No. 1403**

**Personnel:** R. B. Maland, F. W. Coyle, G. H. Danielson, Ford C. Marquis, L. C. Wickstrom, P. C. Nelson, V. T. Peterson.

**New Products:** Di-Acro spring winder, Di-Acro press brake.

**Other Products:** Di-Acro hand and power-operated benders, hand-operated brakes, hand and power-operated rod parters, hand and power-operated shears, power punch, hand-operated rollers, hand-operated notchers, hand-operated spring winders, hand-operated press brakes.

**OPTICAL GAGING PRODUCTS, INC.**

Rochester, N. Y.

**Booth No. 400**

**Personnel:** W. DeBoer; E. C. Polidor; John Bernardini; Wayne Norton; Dean Arlidge; Mark Ryan; E. Bott; P. W. Crump; J. Minot; N. C. Maturevitz;

**OGP gear analyzer**

Optical Gaging Products, Inc.



J. Huff; R. Wirges; G. D. Hollinshead; J. Conte; T. McMurtrie; J. C. Ott.

**Products:** Working exhibit of the advantages of optical projection gaging on the production line and in the tool-room. Featured is a new method of gear analysis by which all elements of gear tooth construction may be inspected and gaged visually; new method of inspection production parts by comparing shadows of a sample and a master part simultaneously; another universal type of gage for rapid inspection of shafts and similar screw-machine parts further demonstrates the versatility of optical projection gaging.

**KURT ORBAN COMPANY, INC.**

New York, N.Y.

**Booth No. 900****ORTMAN-MILLER MACHINE CO., INC.**

Hammond, Ind.

**Booth No. 612****THE OSBORN MFG. CO.**

Cleveland, Ohio

**Booth No. 627**

**New Products:** The Brushmatic 4-L3 was recently added to the line of Osborn's brushing machines to handle metallic or non-metallic components up to 100 pounds in weight. Rugged in design, the workholder is integral with the brushing lathe, thus providing a fixed relation between brush and work to be brushed which can always be depended on.

**Other Products:** Complete line of industrial brushes and machines.

**OZALID, (Div. Gen. Aniline & Film)**

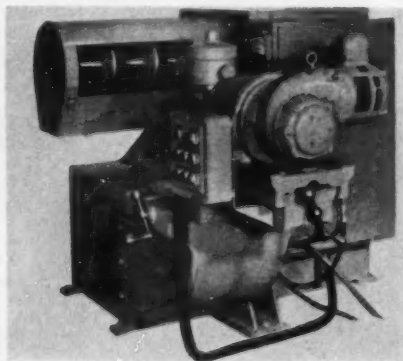
Johnson City, N. Y.

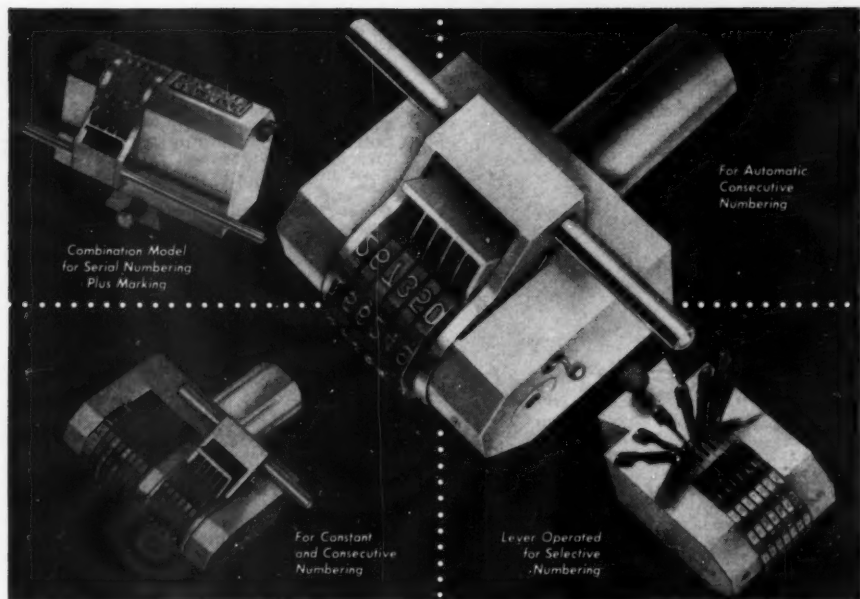
**Booth No. 965**

**Personnel:** J. A. Travis, Atlantic Reg'l. S.M.; Hugh Silbaugh, Sales Prom. Mgr.; J. O'Connor, and L. Knaphle, Market Analysts. Other personnel will be pres-

**4-L3 Industrial brushing machine**

The Osborn Mfg. Co.





## NOBLEWEST *Precision Numbering Heads*

1 2 3 4 5 6

1 2 3 4 5 7

1 2 3 4 5 8

1 2 3 4 5 9

1 2 3 4 6 0

1 2 3 4 6 1

Fast, accurate and dependable, Noblewest Numbering Heads are preferred by the leaders in industry. They have unlimited applications for *constant, selective and consecutive* numbering. Designed for use in either marking presses or Noblewest Roll Marking Machines — wherever permanent numbering is required. Available in a wide variety of automatic, non-automatic and lever operated models with number sizes from 1/40" to 1/2". Special numbering heads are made to any requirements including embossing heads and numbering heads combined with marking dies. Write to Noble & Westbrook Manufacturing Company, 9 Westbrook Street, East Hartford 8, Conn.

MARK IT BEST WITH

# NOBLEWEST

ORIGINATORS OF THE ROLL MARKING PROCESS

NOBLEWEST  
IMPROVED  
MARKING  
DEVICES

**Be sure to visit Noblewest Booth 520 at The Tool Engineers' Show**



**White print machine**

Ozalid (Div. Gen. Aniline & Film)

ent from Ozalid's Sales Promotion Dept., Johnson City, N. Y., and Chas. W. Speidel & Co., Inc. of Fernwood (Del. Co.), Pa., Ozalid's distributor.

**New Products:** Model "800," Ozalid's new whiteprint machine, has improved automatic separating device and a new vapor expulsion unit; printing speed up to 30' per minute; handles roll or cut sheet stock up to 42" wide and any length.

**Other Products:** The Ozamatic, Ozalid's compact, desk-top machine designed for translucent originals up to 16" wide . . . any length; copying speed up to 30' per minute. The Bambino, occupies less space than an electric typewriter; copies can be made as fast as 200 per hour at a cost of 1½¢ per copy. Materials up to 9" wide any length can be reproduced.

**PANGBORN CORPORATION**

Hagerstown, Md.

**Booth No. 1412**

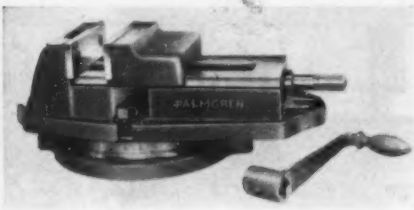
**PALMGREN STEEL PRODUCTS**

(Chicago Tool and Eng. Co.)  
Chicago, Ill.

**Booth No. 1915**

**Vise on swivel base**

Palmgren Steel Products



**Personnel:** C. A. Palmgren, Pres.

**New Products:** Palmgren No. 60B flanged milling machine vise with swivel base (illustrated) is provided with flanges for clamping down to the machine table and may be used with or without the 360° graduated swivel base. The swivel base is equipped with two bolt lugs for clamping to the machine and is also furnished with two 11/16" keys and screws to fit machine table slots.

**Other Products:** Palmgren angle vises, drill press vises, swivel machine vises, heavy duty angle vises, cam action production vises, milling attachments for lathes, adjustable angle plates, rotary index milling tables . . . (No. 83 rotary table has two cross and rotary feeds).

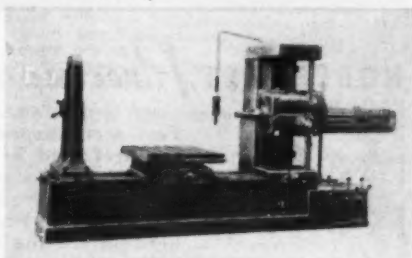
**PARKER MACHINE CO., INC.**

Brooklyn, N. Y.

**Booth No. 1800**

**Personnel:** K. L. Sonnenberg, Gen. Mgr.; B. M. Sonnenberg, Mgr.; J. H. Schleiffer, Eng.

**Products:** 3" Wotan horizontal boring mill (illustrated); No. 2 Hercules horizontal milling machine; No. 2 Imperia tool & cutter grinder; 16" Wotan shaper with universal table; 22" Wotan shaper; Type R530—59" Progres lathe, No. 3—25" Rosa drilling machine.



**Horizontal boring mill**

Parker Machine Co.

**PEDRICK TOOL & MACHINE CO.**

Philadelphia, Pa.

**Booth No. 1442**

**Personnel:** Ralph M. Shaw, Jr., Pres.; M. R. Shaw, V.P.; George H. Metz, Jr., V.P.

**Products:** Pedrick production bender.

**PENN SCIENTIFIC PRODUCTS CO.**

Abington, Pa.

**Booth No. 1115**

**Personnel:** R. D. Karnell; W. H. Ehlo; R. A. Karnell; F. Katosic; J. Ciccolo.

**New Products:** Pensco dual wheel; diamond wheels, tools, powders; Spectrum diamond lapping compound, tools, abrasives, wheels.

## Budget Cut?

### We Can Help You

Let us show you how to cut costs with the

## **SUPERIOR Model "AL" HONING MACHINE**

Infinitely variable speeds from 250 to 1150 r.p.m. with tachometer. Quick, easy adjustment.

Smooth running, ball bearing, hardened spindle.

Foot controlled, disc-type clutch and brake. 220/440 volt, 3/4 h.p. ball bearing spindle drive motor. 1/10 h.p. centrifugal-type coolant pump.

Magnetic starters. Service light.

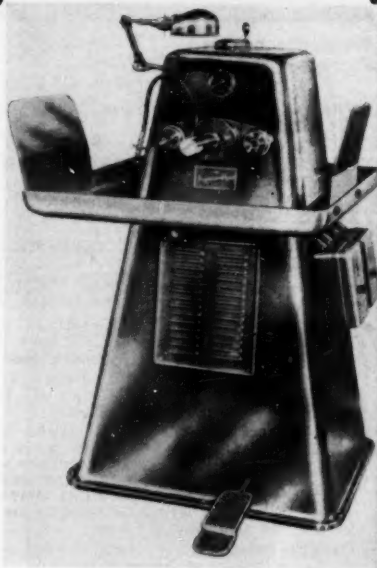
Accepts standard mandrels, 3/16" to 3", in the same spindle. No adapters required. Wide honing range of each mandrel cuts original costs.

No metal-to-metal contact to wear out mandrels as well as stones.

Larger area stone cuts faster, lasts longer. Hones over keyways and splines with standard mandrels and stones.

Superior mandrels and stones may be adapted to all other makes of small honing machines by the use of a single adapter.

Consider all these ways the Superior Honing Machine saves you money and then use coupon to get free catalog and the name of your nearest stocking dealer. Mail it now!

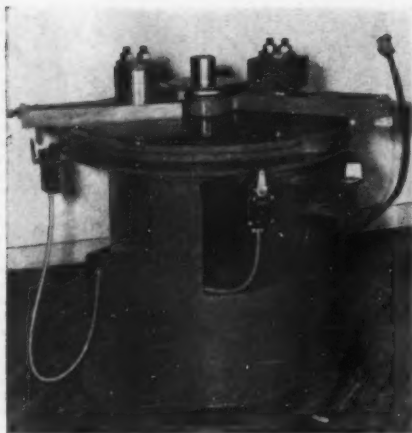


**SUPERIOR HONE CORPORATION**  
**1616 Elreno Street** **Elkhart, Indiana**

Please send free catalog on Superior Honing Machines.

NAME .....  
FIRM .....  
STREET .....  
CITY & STATE .....





**Production bender**  
Pedrick Tool & Mach. Co.

**PERFEX GAGE AND TOOL CO.**

Mt. Clemens, Mich.

**Booth No. 428**

**THE PERKIN-ELMER CORPORATION**

Norwalk, Conn.

**Booth No. 116**

**PERRY EQUIPT. & ENG. CO.**

Erie, Pa.

**Booth No. 1925**

**PFAUTER MACHINE CO.**

Ludwigsburg, W. Germany

**Booth No. 2159**

**PINES ENGINEERING CO., INC.**

Aurora, Ill.

**Booth No. 605**

**Personnel:** B. F. Bower, Pres.; J. E. Hawking, S.M.; G. F. Behrend, Dist. Mgr.; K. F. Weith, Sales Eng.

**Products:** Pines No. 3/4 hydraulic tube bending machine (illustrated with cut-away section of tube 1 1/2" diameter with .032" wall bent to a centerline radius of 1 1/2"); pieces formed without wrinkles or flattening at average production of 500 bends an hour, or over.

**PIONEER TOOL ENG., INC.**

El Segundo, Calif.

**Booth No. 522**

**Personnel:** Kenneth W. Fritch.

**New Products:** Cast aluminum tool & jig plate.

**Other Products:** Various fabricated tools.

**THE PNEUMA-DRAULIC CO.**

Detroit, Mich.

**Booth No. 2007**

**Personnel:** A. L. Caplan.

**THE PORTAGE DOUBLE QUICK**

TOOL CO.  
Akron, Ohio

**Booth No. 128**



**Internal comparator**  
Portage Double Quick Tool Co.

**Personnel:** Wesley Novkov; Owen Morgan; Stanley Cimarik.

**New Products:** Internal comparator. The Interapid is used to measure inside diameters, measurements, 3/8" to 6" capacity. Meter type scale graduated in .0005". Initial setting made with gage blocks, master gage rings or micrometers. Small locking lever for retracting arms makes it easier for gaging tips to enter. Adjustment is by knob.

**Other Products:** Complete line of Portage Double Quick quick-change tools, holders and adapters.

**PORTER-MCLEOD MACHINE TOOL COMPANY, INC.**

Hatfield, Mass.

**Booth No. 2060**

**PORTMAN INSTRUMENT CO., INC.**

New Rochelle, N. Y.

**Booth No. 2155**

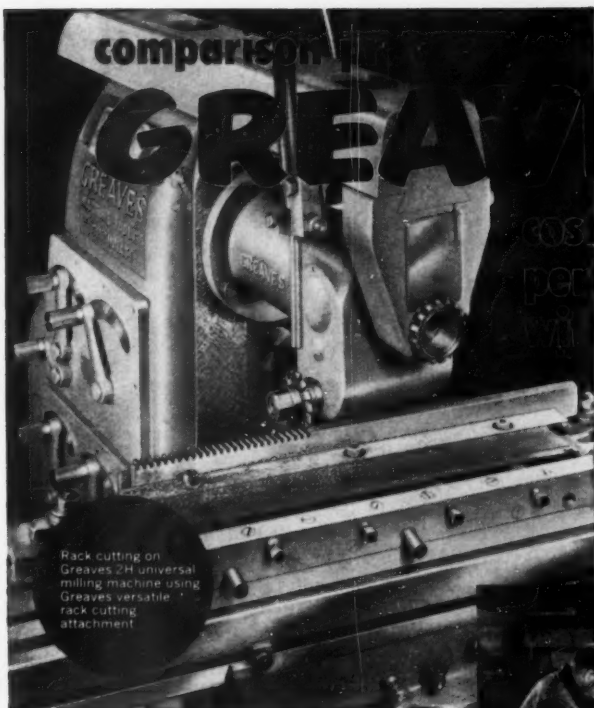
**Personnel:** Lawrence B. Portman, Pres.; Raymond H. Portman, V.P.; Charles H. Portman, V.P.; Warren C. Portman, Designer; Walter H. Clardon, Eng.; Evelyn M. Sirica, Sec.

**New Products:** Optical comparators (illustrated), optical form grinding machine, optical comparator charts. Comparator designed for use as optical form grinder projector and as conventional universal type optical comparator. Lens available for magnifications of 10 to 100X. For use on most surface grinders 6 x 18 or 8 x 24 inch size.

**PRATT & WHITNEY DIVISION  
NILES-BEMENT-POND COMPANY**

W. Hartford, Conn.

**Booth No. 1531**



Rack cutting on Greaves 2H universal milling machine using Greaves versatile rack cutting attachment

comparison

# GREAVES

costs less  
performs  
with the best

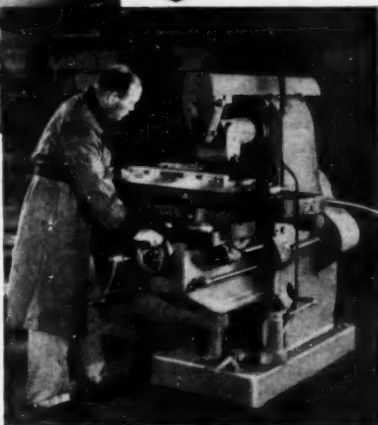
Greaves 2H Universal Milling Machine

**Before you buy . . . get the facts!** When it comes to speeds, feeds, power and capacity, the Greaves 2H plain and universal milling machines are right around the top. But when you're talking about original purchase price and cost of operation and maintenance, Greaves is lowest!

**Make your own comparison!** Don't just take our word for it . . . send today for chart comparing the eight leading milling machines. See for yourself why Greaves is your best buy.

## GREAVES MACHINE TOOL CO.

CINCINNATI 2, OHIO, U. S. A. ESTABLISHED 1917 DIV. J. A. FAY & EGAN CO.



Please send me chart comparing the 8 leading U.S. milling machines for price, capacity, power and other significant specifications.

GREAVES MACHINE TOOL CO.

2000 Eastern Avenue  
Cincinnati 2, Ohio

NAME

COMPANY

ADDRESS

CITY

ZONE

STATE



**Projector comparator**  
Portman Instrument Co.

**PRECISE PRODUCTS CORP.**  
Racine, Wis.

**Booth No. 525**

**New Products:** Model Super 30 grinder-miller, 35 oz., 1/5 h.p., 45,000 rpm (illustrated). Carbide mills used for die finishing, rapid metal cutting. The Super 50 power quill on precision toolroom lathe or large universal milling machine shown doing micro milling to tolerances of .0001" in hardened alloy steels.

**Other Products:** Several other units, grinding, milling at high speeds on 115 volts, ac/dc.

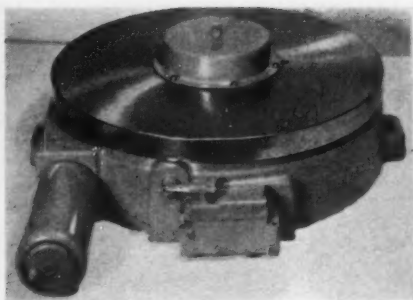
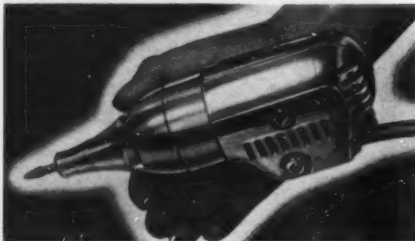
**PRECISION DETROIT COMPANY**  
20100 Sherwood Ave., Detroit 34, Mich.

**Booth No. 535**

**Personnel:** Willard F. Thoma, Owner; Cliff F. Gray, Jr.; Neil Bristol.

**New Products:** PDC-AM14 index table, has Geneva motion; accurate  $\pm .001$  on

**Grinder-miller 45,000 rpm**  
Precise Products Corp.



**Index table**  
Precision Detroit Co.

11" work circle. Power applied to Geneva spindle through worm and wheel driven by standard rotary type air motor. Furnished in 3, 4, 6, 8 and 12 stations.

**PRECISION DIAMOND TOOL COMPANY**  
Elgin, Ill.

**Booth No. 1321**

**PRECISION GRINDING WHEEL CO., INC.**  
Philadelphia, Pa.

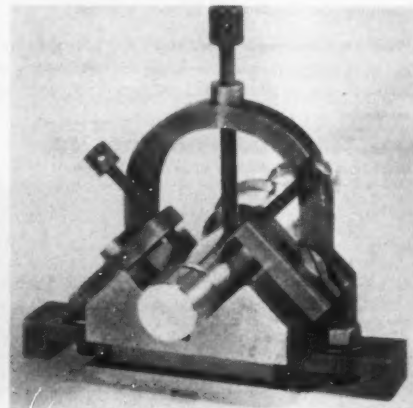
**Booth No. 504**

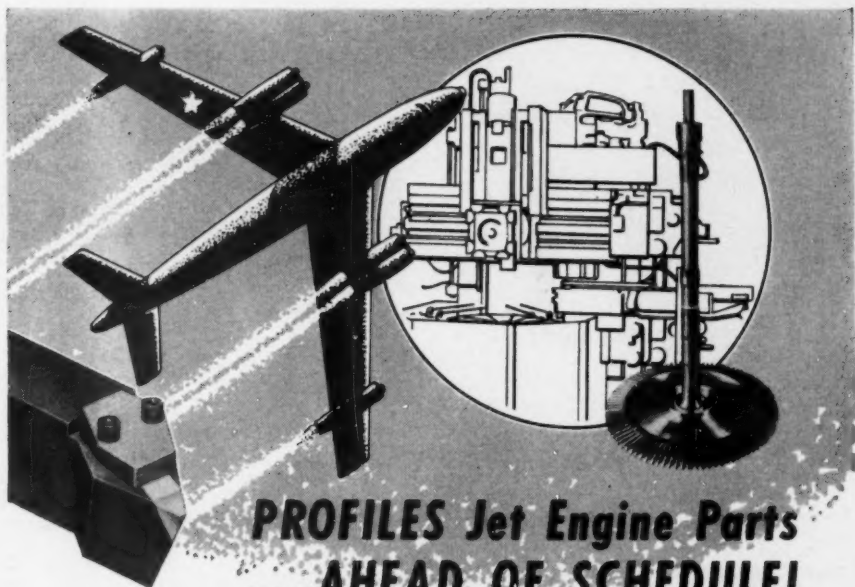
**Personnel:** G. F. Kohn; J. W. Basch; M. J. Hermann; W. T. Storey; W. R. Streckenbein; C. L. Miller; F. W. Anderson; L. J. Harwood; W. P. Conant; C. B. Claspill; R. W. Eggleston; H. F. Gillis.

**New Products:** "Grinding wheel with eye appeal," pink colored. It is said to be faster, freer cutting, sharper, holds shape longer, lasts.

**Other Products:** All types of grinding wheels.

**Uni-V-Blocks**  
Precision Tool & Mfg. Co.





## PROFILES Jet Engine Parts ...AHEAD OF SCHEDULE!

Profiling is the modern method of machining intricate contours on metal parts, using a cutting tool which is electronically guided by a stylus following a template. It has these cost-saving advantages:

*Piece after piece can be accurately produced, each an exact duplicate of the other—at much higher production rates, using far less skilled operators' time—IF . . .*

. . . the cutting tool can take it. The burden on the tool is heavy. It must have ruggedness and a strong, wear-resistant, keen edge able to accurately duplicate the template pattern throughout the cutting cycle—frequently on new alloys that are difficult to machine. For example:

The jet engine turbine wheel and shaft shown above—made of tough, heat-re-

sistant alloy—must be produced in quantities, fast—and all surfaces must have a fine, smooth finish, held to extremely close tolerances. Kennametal\* tooling has performed so well on this job that output of the component is well ahead of schedule.

This is typical of Kennametal's leadership in adapting tungsten carbide to the specific needs of industry. Whether it be a tool for cutting tough metals or the need for a high shock, abrasion or wear-resistant material for vital parts in your products or processing line, Kennametal may be the answer. It is 100 times as resistant to wear as steel . . . almost as hard as the diamond.

Tell us your problem. Our metallurgists and engineers may be able to help you solve it with Kennametal. Latrobe, Pa.

\*Registered Trade-Marks

# KENNAMETAL

CEMENTED CARBIDE TOOLING  
THAT INCREASES PRODUCTIVITY



SALES  
OFFICES  
IN  
PRINCIPAL  
CITIES



**New "Tap-King" heavy duty tapping attachment**  
Procunier Safety Chuck Co.

**PRECISION SPINDLE, INC.**  
Crystal Lake, Ill.

**Booth No. 2066**

**PRECISION TOOL & MFG. CO.**  
Cicero, Ill.

**Booth No. 114**

**Personnel:** A. Giuntoli; B. Sainati.

**New Products:** Uni-V-Blocks.

**Other Products:** Parallel clamps.

**THE PROCUNIER SAFETY CHUCK CO.**  
Chicago, Ill.

**Booth No. 1621**

**Personnel:** J. McConnell, Pres.; A. R. Miller; S. Feinberg; G. Mate.

**New Products:** The new heavy duty Tap King tapping attachment. This high speed unit, with a tap capacity of 1" in steel has drastically revised large hole tapping production methods.

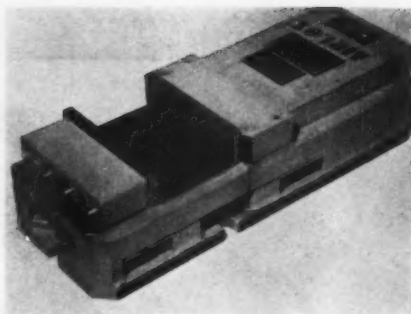
**Products:** Universal foot operated tapping machine; tapping attachments; quick change chucks and collets.

**PRODUCTION DEVICES INC.**  
Whitehall, N. Y.

**Booth No. 1971**

**Personnel:** Drayton C. Zipp; Richard W. Clynes; Richard S. Lyons; A. L. Dery.

**New Products:** Improved Airlox S-7 pneumatic vise; chip plate and felt installation used to keep chips from mechanism or clogging under movable jaw, with a new system added for



**Pneumatic vise**  
Production Devices Inc.

greasing jaw of the vise. If fine chips do get through, application with grease gun pushes them out.  
**Other Products:** Airlox pneumatic vises, various types.

**THE PRODUCTO MACHINE COMPANY**  
Bridgeport, Conn.

**Booth No. 722**

**PRODUCTION MACHINE COMPANY**  
Greenfield, Mass.

**Booth No. 1731**

**PRODUCTION MAGAZINE**  
Birmingham, Mich.

**Booth No. 811**

**PUTNAM TOOL CO.**  
Detroit, Mich.

**Booth No. 1717**

**Personnel:** Ernest C. Putnam, Pres.; Melvin L. Weinberg, S.M.; Bradford B. Mills, Asst. Sales Mgr.; A. F. Vail, J. Stickney, K. J. MacCallum, Robert Mein, R. O. Butler, Salesmen.

**Products:** End mills, counterbores and reamers.

**R. B. TOOL CO., INC.**  
White Plains, N. Y.

**Booth No. 2004**

**Personnel:** Erwin C. Winkelmann, Sales Mgr.; Kurt Reinhardt, Louis H. Clark and H. S. Kahn, Sales Engineers.

**New Products:** Type FN adjustable spring cutting off tool holder; boring bars with half-elliptical carbide bits; reconditioned service for used power hack saw blades; Wohlrip drill stops and drill extractors; tool holders with adjustable center height.

**Other Products:** Internal cutting tools for boring, facing, threading and recessing; tool holders; precision chucks for taps; recessing tools for screw machines; internal carbide cutting tools; threading tool sets type "ST."

IF YOU'RE CUTTING  
OR NOTCHING PIPE,  
TUBING, ANGLE IRON  
OR FLAT STOCK...

# THESE TOOLS

*Will Save*

*Many minutes an hour  
Many Dollars a Day!*



HIGH SPEED, PRECISION-BUILT

## ARC-FIT UNITS

NOTCH CLEANER AND FASTER

ARC-FIT notches make snug-fitting "T" joints ready for welding or brazing without extra finishing. Both the super-fast Twin-Notch and Standard Arc-Fits accommodate  $\frac{1}{2}$ " to and including 2" pipe or tubing. Dies available for each size . . . Special Arc-Fits for angular cuts or larger sizes.

### TUBE CUT-OFF MACHINE

Offers the fastest known method of cutting tubing to accurate lengths.

### ARC-FIT HAND PRESS

(For Bench or Truck)

Notches pipe or tubing up to  $2\frac{3}{4}$ " O.D. in less than five seconds. Weighs 90 lbs.

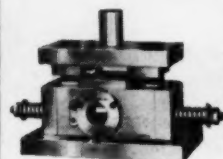
Our engineering staff will be glad to consult with you—no obligation.... Ask for Literature.

Manufactured by

# VOGEL

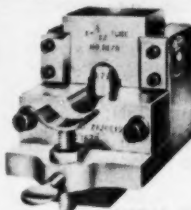
TOOL & DIE CORPORATION

1811 NORTH 32nd AVENUE • MELROSE PARK, ILLINOIS



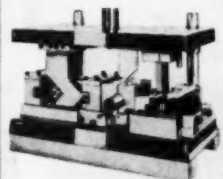
### TWIN-NOTCH ARC-FIT

Notches both sides of tubing with single stroke of press ram. Makes perfect "T" joints.



### STANDARD ARC-FIT

Notches in five seconds or less. For hand or power press.



### TUBE CUT-OFF MACHINE

Cuts  $\frac{1}{2}$ " or longer lengths accurately to  $\pm .010$ " with each stroke of press.

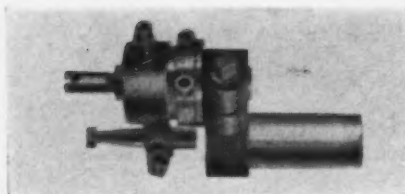


### ARC-FIT HAND PRESS

Low cost, portable, fast and accurate. Use with standard Arc-Fit or for other applications.







**R and L reaming tool**  
R and L Tools

**R AND L TOOLS**  
Philadelphia, Pa.

**Booth No. 134**

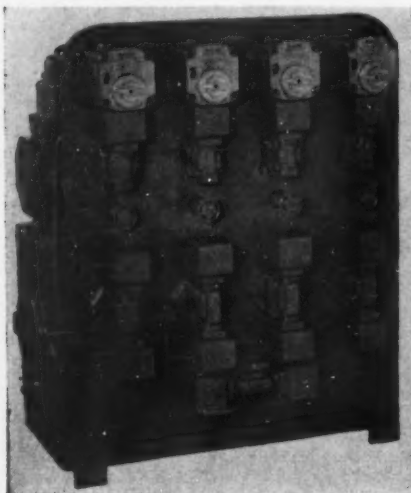
**New Products:** Reaming tool can be adjusted to operate on any internal diameter within capacity of the machine. Can be adjusted to operate on outside diameters for cutting grooves, etc.

**Other Products:** Complete line of screw machine tools, including: backrest holders; backrests; cut-off blade holders; diamond hones; floating drill holders; knurling tools; reaming tools; releasing die holders; revolving stock stops; rollers and pins; standard tool bits; tap and die holders; turning tools; universal tool posts.

**RACINE HYDRAULICS & MCHY. CO.**  
Racine, Wis.

**Booth No. 600**

**Paneled power units**  
Racine Hydraulics & Mach. Co.



**Personnel:** H. A. Schultz; G. B. Miller.  
**New Products:** Special paneled power units (illustrated).

**Other Products:** Variable volume pumps, 5 to 70 gpm, directional valves, feed valves, pressure regulating valves, pressure boosters and other related hydraulic component units.

**RAHN GRANITE SURFACE PLATE CO.**  
Dayton, Ohio

**Booth No. 336**

**Personnel:** A. D. Ohrman; I. J. Rahn; R. J. Rahn.

**New Products:** Surface plate calibration instrument.

**Other Products:** Black granite surface plate, angle plate, parallels and straight edges. Demonstrations of self-proving angle plate and of a fast, accurate method of surface plate inspection.

**RAYTHEON MANUFACTURING COMPANY**  
Waltham, Mass.

**Booth No. 2101**

**RELIANT INDUSTRIES**  
South Gate, Calif.

**Booth No. 326**

**Products:** 3" to 6" adjustable snap gage (illustrated); dial indicator snap ring groove gage; 0" to 3" adjustable snap gage. The former is adjustable from 3" to 6". 18" bar provided in set for gaging over 6" on parts not requiring deep throat dimensions.

**REZOLIN, INC.**  
Los Angeles, Calif.

**Booth No. 1914**

**Personnel:** Lee R. Miller, Pres. and Gen. Mgr.; Geo. C. Adams, Staff Engr.; Howard Stevens, New York Area Mgr.

**Surface calibration**  
Rahn Granite Surface Plate Co.





*Here's better quality at lower cost... New Osborn Brushmatic No. 4 Machine. Handles metallic and non-metallic parts up to 100 pounds. Here, it is set up to deburr and blend teeth of sprocket.*

## Choose your weapons!

**H**OW are you going to answer the challenge of competition when it comes to your deburring and finishing operations? By hand? Or, by machine... with the Osborn Brushmatic? You'll far outclass the old manual deburring department in *quality* of work and in *economy* when you convert to Osborn's automatic power brushing.

At the push of a button, Brusha-

matic machines remove burrs and feather edges, blend surface junctures and clean parts thoroughly. Results are absolutely uniform... piece after piece. Scrap loss is nil. Service life of part is increased through elimination of stress-concentrating scratches. And it turns out work about 5 times as fast as hand methods.

Find out how you can apply this

modern method to your production. Call your nearby Osborn Brushing Analyst or write *The Osborn Manufacturing Company, Dept. A-31, 3401 Hamilton Avenue, Cleveland 14, Ohio.*

### INFORMATION:

Write today for your copies of booklets on Automatic Deburring and on Brushmatic Machines.



SEE IT AT OSBORN BOOTH 627, ASTE SHOW.

# Osborn Brushmatic

BETTER QUALITY... LOWER COSTS... AT THE PUSH OF A BUTTON



#### Laminating resins

Rezolin, Inc.

**New Products:** Dyform, Ethylecellulose material for high impact metal forming with Ceco stamp and drop hammer; non-shrink epoxy series—L-900 for laminating L-910 Gelkote for achieving high gloss finish on laminate; L-930—(metallic) surface casting resin for facing metal, and phenolic tools and special applications; all available in two units resin and hardener in the proper proportions.

**Other Products:** Toolplastik, non-shrink phenolic casting resin; Corfoam, a phenolic foam material for core structures and special applications, both industrial and structural.



"I think Dribble is overstepping his authority."



#### 3" to 6" snap gage

Reliant Industries

#### J. A. RICHARDS CO.

Kalamazoo, Mich.

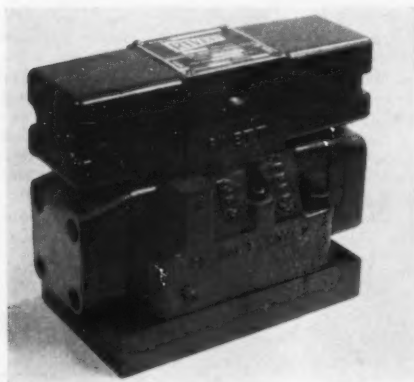
Booth No. 1632

**Personnel:** Paul A. Richards, J. A. Richards, Jr.

**New Products:** New tooling for big

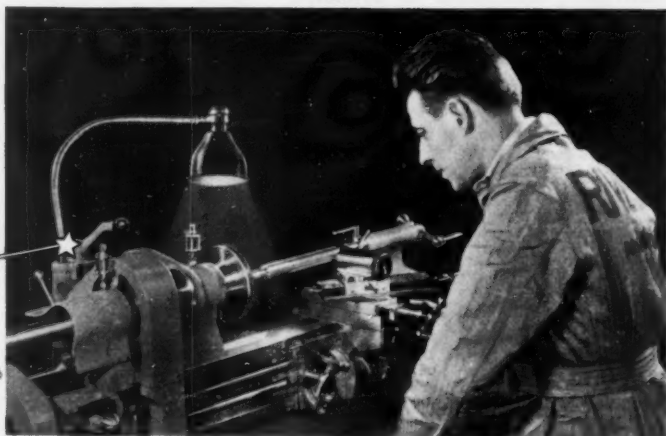
#### Hydraulic valve

Rivett Lathe & Grinder, Inc.



# STOP CHASING SHADOWS

## INSTALL **VIMCO** *Lights*



### ONE OF SIX STANDARD MODELS

Special models available  
for Machine Tool  
Builders.

### INSTALL VIMCO LIGHTS AS ORIGINAL EQUIPMENT

Deliver your machines with "on-the-spot" Vimcolights already installed . . . and you assure continued high rated machine performance. These famous supplementary lights eliminate shadows otherwise cast by the machine operator. Unnecessary waste, errors and slow downs are prevented. With Vimcolights, operators SEE BETTER . . . and WORK BETTER.

*Write for new bulletin 85*

All Standard Models Underwriters Listed.

## VIMCO MFG. COMPANY, INC.

109 BRAYTON ST.

Established 1919

BUFFALO 13, N. Y.

brother benders for forming tubing and solid rounds.

**Other Products:** Multiform benders for the fabrication of irregular shaped metal parts without any special tooling cost.

#### **RIVETT LATHE & GRINDER, INC.**

Boston, Mass.

**Booth No. 1854**

**Personnel:** A. B. Hunt, V.P.; J. A. Marsh, S.M.; R. C. Taisey, Project Eng.; L. J. Stoutenburg, Jr., Eng.

**New Products:** Sub-plate mounted solenoid pilot operated hydraulic valves (illustrated), steel cover air cylinders.

**Other Products:** Functional hydraulic valves, directional hydraulic valves, air valves, hydraulic cylinders, air cylinders, hydraulic power units.

#### **ROBERTSON MFG. CO.**

Trenton, N. J.

**Booth No. 1912**

**Personnel:** S. M. Hershey, H. S. Watson, J. P. Herbert, George Nisula, R. F. Robbins.

**New Products:** Operation of a Reid surface grinding machine using a new technique in surface grinding.

**Other Products:** Grinding wheels and segments.

#### **ROCKWELL MFG. CO.**

Pittsburgh, Pa.

(Note: Two divisions will have separate exhibits at adjoining booths: Delta Power Tool Div. and Drill Unit Div.)

**Booth No. 1238 (3 booths)**

**Personnel:** (For Delta) E. W. Ristau, V.P. Sales; F. P. Maxwell, V.P. Operations; Ben Eldridge, Metalworking products Mgr.; R. J. Brown, Advertising & Sales Prom. Mgr.; George Rockwell, Eastern Regional Sales Mgr.; William Samuels, John Greguric and Richard Hubbell, Advertising and Sales Prom. Dept.; George Powell, Pittsburgh; Robert Humphrey, N. Y.; Theodore Kiernan, Phila.; Edward Metzler, Cleveland; Richard Rockwell, Baltimore; R. Ludwig, N. Y.; John Pugh, Buffalo, District Managers.

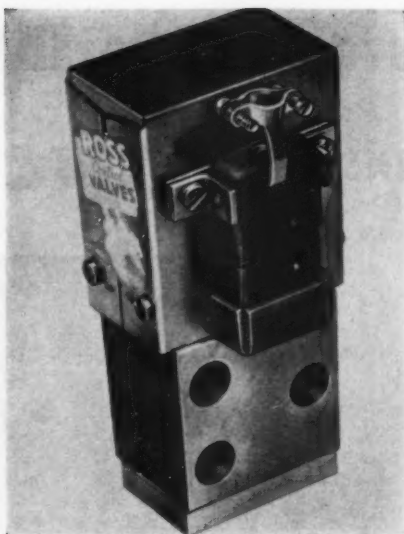
(For Drill Unit Div.) L. K. Shepard, Sales Mgr.; Robert Nist, Sales Engineer; Clarence Johnson, Development Eng.; Otto Schmidt, Midwestern Sales Rep. **Products:** (Delta) Improved applications of standard Delta tools, special short cuts; cutting, drilling, grinding and finishing machines all under power. (Drill Unit Div.) New modification of standard air-hydraulic drill unit for greater thrust capacity, from 1800 lbs. to 6500 lbs., using 300 psi oil pressure.

#### **ROSS OPERATING VALVE CO.**

Detroit, Mich.

**Booth No. 800**

**New Products:** Comet valve, a  $\frac{1}{4}$ " 4-way solenoid valve, operates at 800 or more cycles per minute. Can be converted to a straight-way or 3-way operation by plugging the ports. It has only one moving part.



**New Comet valve**

Ross Operating Valve Co.

**Other Products:** Series 800 and foot valves; 600 series hand and foot valves; larger hand controlled valves, the 101 series; larger foot valves; Ross 515 M1 speed control valve; Ross "Pancake" poppet valve; the 2" pipe size models of Ross Inline series.

#### **THE ROTOR TOOL CO.**

Cleveland, Ohio

**Booth No. 1246**

**Personnel:** C. E. Vanderpool, Gene Holland, Floyd Paschke, R. C. Manning, Dave McLaughlin, R. Allchin.

**New Products:** 4" grinders, cone grinders, 6" grinders, 8" grinders, 40,000 r.p.m. (bladed air motor) pencil grinder,  $\frac{1}{4}$ " impact wrench (reversible), reversible screwdrivers and nutsetters.

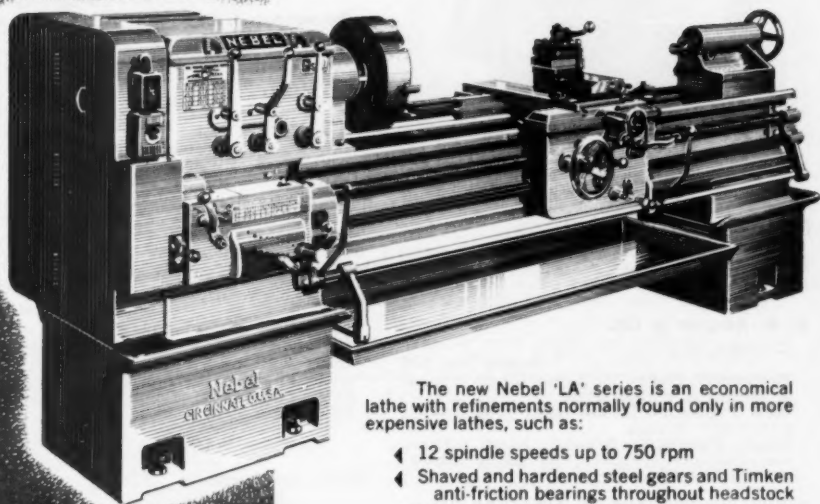
**Grinder, 6" wheel, 6000 rpm**

The Rotor Tool Co.



**SPEED  
PRECISION  
PRODUCTION  
ECONOMY**

## Get all 4 with the new 16" Nebel 'LA' series engine lathe



The new Nebel 'LA' series is an economical lathe with refinements normally found only in more expensive lathes, such as:

- ✦ 12 spindle speeds up to 750 rpm
- ✦ Shaved and hardened steel gears and Timken anti-friction bearings throughout headstock
- ✦ Hardened steel gears throughout apron and quick change box
- ✦ Taper spindle nose at no additional charge
- ✦ Solid, substantial construction

The new Nebel 'LA' series includes 16" and 20" engine and 16"/27" and 20"/30" removable block gap lathes. For complete information on your best size and type, use convenient coupon.

- ★ Engine
- ★ Removable block gap
- ★ Extension bed gap



**nebel**  
**LATHES**  
CINCINNATI

The Nebel Machine Tool Co.  
340B Central Parkway, Cincinnati 25, Ohio

- ☐ Send bulletin on new 16" 'LA' engine and gap lathes  
☐ Send bulletin on new 20" 'LA' engine and gap lathes

Name

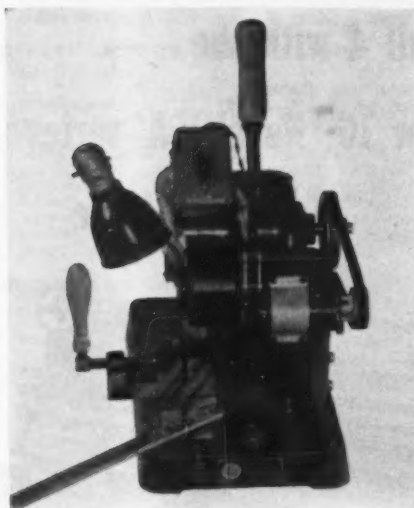
Address

City  State





**Other Products:** Air and high cycle electric (180 and 360 cycle) portable tools.



**Hand miller**  
H. B. Rouse & Co.

**H. B. ROUSE & CO.**  
Chicago, Ill.

**Booth No. 643**

**Personnel:** Harry W. Knoll, Pres.; Frank J. Stephan, Sales Dept.

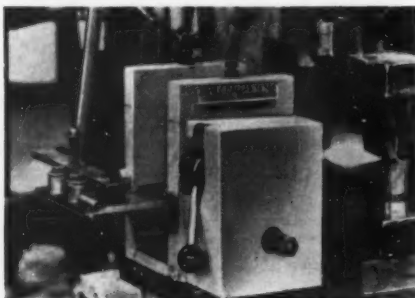
**New Products:** Rouse hand miller with automatic action.

**Other Products:** Several hand millers working on typical jobs using Rouse standard fixture setups.

**ROWE MACHINERY & MFG. CO., INC.**  
Dallas, Texas

**Booth No. 1754**

**Roll feeds**  
Rowe Mach. & Mfg. Co.



**New Products:** First two sizes (2" x 2" and 4" x 4") of its new line of roll feeds for feeding punch presses. Extreme accuracy, factory sealed ball bearings are features. Also introduced is a variation of their combination straightening machine and coil stock cradle, incorporating a clutch and brake assembly. This combination may be utilized to feed out either short or long lengths, feeding punch presses or shear lines.

**Other Products:** Complete line of Rowe "Easy Load" automatic coil stock cradles, automatic straightening machines and combination units.

**JOSEPH T. RYERSON & SON, INC.**  
Chicago, Ill.

**Booth No. 638**

**Personnel:** J. C. Andes; W. H. C. Bassett; A. P. Beckloff; A. B. Burke; N. B. Caldwell; F. W. Eichman; F. L. Eicholtz; W. E. Falberg; W. H. Funk; L. H. Gillespie; C. C. Gobdel; W. W. Goodwin; J. J. Hauptly; P. B. Heins; H. J. Holquist; G. B. Howell; W. S. Kucker; R. L. Larson; H. C. Lehne; C. C. Mathews; R. W. Milow; C. J. Nelson, Jr.; E. J. Richardson; W. S. Ring; H. B. Williams; W. J. Winkler.

**Products:** Show Ledloy, a lead-bearing carbon steel, in machinability demonstrations.

**ROYAL OAK TOOL & MACH. CO.**  
Royal Oak, Mich.

**Booth No. 523**

**Products:** D. S. Radial relief grinder for grinding eccentric relief, both on tools and production parts leaving additional metal behind the cutting edge, supporting the edge and giving additional life to the tool.

**Radial relief grinder**

Royal Oak Tool & Machine Co.



# REPLACE *Obsolete* TAPPING HEADS NOW!



## Modern Procunier Tappers are Streamlining Production Methods . . . Everywhere!



New  
"Tru-grip"  
Tap  
Holder

If you are now using ancient, troublesome tapping equipment, you are needlessly increasing operating costs, seriously impairing production and adding to your maintenance expense. Out-of-date, over-used models are incapable of attaining the streamlined efficiency that modernized industry is demanding. Progressive industrial users who recognize the need for high speed, accuracy and efficiency, are turning to Procunier Tappers as the solution to their steadily mounting production and spoilage costs. Procunier Tappers invariably produce more pieces per hour with fewer rejections, fewer spoiled pieces and a minimum of broken taps.

Designed for today's tough production conditions, they incorporate many unique and exclusive construction and operating features. Best of all, they're made to "take it" and provide you with many more profitable "operating hours" and less costly down time interruption.

Procunier tapping heads are priced low enough to make it economically possible to rid your plant of obsolete tapping heads NOW!

### Write for FREE Brochure

giving full details, specifications, diagrams and work drawings on the complete line of Procunier tapping heads and accessories. See how they can fit into your present plant pattern.



Visit Our  
Booth No. 1621  
At The  
ASTE Show

# Procunier

## Safety Chuck Company

14 S. CLINTON ST., CHICAGO 6, ILL.

**PROCUNIER SAFETY CHUCK CO.**  
14 S. Clinton St., Chicago 6, Ill. Dept. 4

Gentlemen: Please send your illustrated brochure giving complete details, specifications and prices on the improved line of Procunier High Speed Tapping Heads.

Name.....

Address.....

City..... Zone..... State.....

**THE S-P MFG. CORP.**  
Cleveland, Ohio

**Booth No. 805**

**Personnel:** David W. Davenport, J. Harry Adams, Merritt B. Sampson, R. W. Shanks, E. S. Tally.

**New Products:** Heavy duty air cylinder for automation and general industrial applications; compensating chucks, 2 and 3 jaw.

**Other Products:** Power chucks, power collet chucks, rotating air cylinders, standard non-rotating air cylinder, high pressure hydraulic cylinders, heavy duty air cylinders for automation, valves & accessories.

**SAHLIN ENG. CO.**  
Birmingham, Mich.

**Booth No. 406**

**Personnel:** Francis J. Sehn, Richard Sahlin, Walter Sahlin, Tom Ryan, Morris Clemons, Jess Filak, John J. Feeley.

**New Products:** Automatic unloading machine, completely self-contained, floor type, horizontal design—Series 3000 for unloading small and medium-size parts from presses and other metalworking machines. Available in fixed and roll-away base.

**SALES SERVICE MACHINE TOOL CO.**  
St. Paul, Minn.

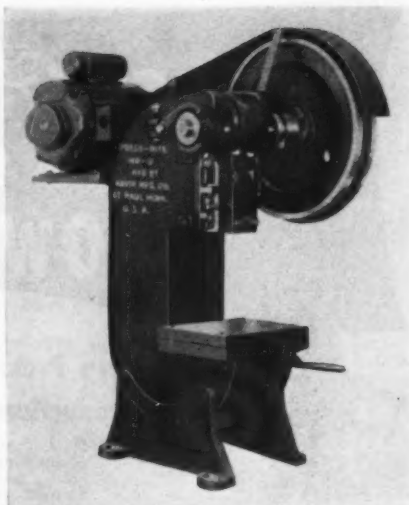
**Booth No. 1538**

**Products:** All No. 0 five-ton Press-Rite presses will now have heavy duty bronze bushings in the fly-wheel, heavy bronze wear plates in the ramway, and new heavy duty clutch. The No. 0 is the smallest of the line which ranges from 5 ton to 85 ton; 10, 20 and 30-ton presses will also be demonstrated.

**SALVO TOOL & ENGINEERING  
COMPANY**  
Roseville, Mich.

**Booth No. 2071**

**Unloading machine**  
Sahlin Eng. Co.



**5-ton press**  
Sales Ser. Mach. Tool Co.

**SANDVIK STEEL INC.**  
(Sandvik Coromant Div.)  
New York, N.Y.

**Booth No. 2011**

**Personnel:** B. C. Brewen, Div. Mgr.; J. B. Thompson, and E. C. Freeborn, Sales Repres.

**New Products:** Carbide tipped tools, carbide blanks and inserts, twist drills, end mills, toolholders, combination cutters, step cutters, etc.

**SCHAUER MANUFACTURING  
CORPORATION**  
Cincinnati, Ohio

**Booth No. 957**

**GEORGE SCHERR COMPANY, INC.**  
New York, N.Y.

**Booth No. 516**

**Combination cutter**  
Sandvik Steel Inc.

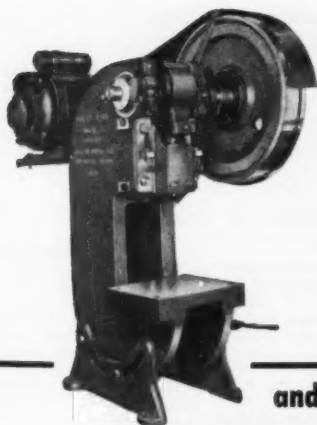


## THREE NEW FEATURES

designed to make the

**PRESS-RITE**  
No. 0 5 Ton

## POWER PRESS the "TOP BUY"



- 1 Heavy duty bronze bushings in the flywheel.
- 2 Heavy bronze wearplates in the ramway.
- 3 New heavy duty long life clutch.

and there's **NO INCREASE** in price.

**STILL \$233<sup>00</sup>**

Bench Model No. 0  
less guard and electricals  
F.O.B., St. Paul, Minn.

**FEATURE FOR FEATURE** you will find no greater value in 5 ton presses today. This Press-Rite 5 Ton Press has practically all the sturdy construction features of the heavier machines in the famous Press-Rite line. No wonder it out-produces ordinary presses!



### NOT JUST ANOTHER 5 TON PRESS . . .

instead it's the leader in it's class. Send for the specifications today and make your own comparison. You'll say it is the best press investment in the 5 ton class.

**FREE !**

*New catalog with full details and prices of the entire Press-Rite line up to 85 Ton capacity. Write for your copy today!*

*Sales Service Machine Tool Co.*

PRESS RITE PRESSES • SHAPE RITE SHAPERS • KELLER POWER HACK SAWS

2357 UNIVERSITY AVENUE • ST. PAUL 4, MINNESOTA



**A. SCHRADER'S SON**  
(Div. Scovill Mfg. Co., Inc.)  
Brooklyn, N.Y.

**Booth Nos. 216 and 218**

**Personnel:** F. L. Engstrom, J. J. Meister, Richard E. Jorgensen, S. LeCount, Edward P. Reilly, Frank P. Meister, Thomas J. Lavin.

**Products:** A complete line of two, three and four-way operating valves, pneumatic cylinders, machine controls, power presses, shears and other plant installations, along with accessories for all pneumatic hook-ups.

**SCHRAMM, INC.**  
West Chester, Pa.

**Booth No. 1230**

**Personnel:** G. B. Comfort, Elton Weikel, P. F. Smith, George A. Naab, Wm. Franz, Don Selgfried.

**Products:** Complete stationary compressor with accessories; to furnish air for other exhibitors needing it for demonstrations.

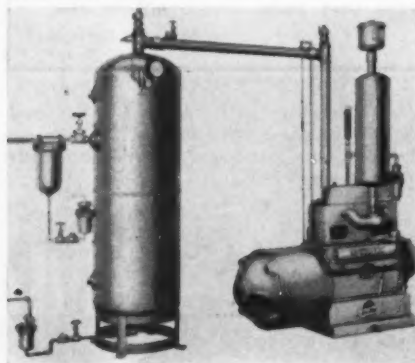
**SCULLY-JONES and CO.**  
Chicago, Ill.

**Booth No. 1530**

**Personnel:** J. A. Scully, Brd. Chairman; H. Dale Long, Pres.; J. Dudley Lockrem, V.P., Dir. Sales; L. H. Skoglund, Jr. V.P., Treas.; Bernie Better, Dir. Res.; Joe Kosinski, Wks. Mgr.; Harry Conn, Chief Eng.; John Lehde, Research Eng.; Don Stenger, Research Eng.; Al Drantz, Design Sup.; Aldo Tognetti, Asst. Chief Eng.; Harry Dziedzic, Tool Eng.; Roger Keough, Design Eng.; Jim Sklenar, Reg. Sales Mgr.; Gordon Cameron, Sales Mgr.

**New Products:** Safe-Torque drivers for taps, featuring adjustable torque and a full-releasing roller driver; a new application of the roller-drive principle, the driver releases completely without the usual friction, heat and wear.

**Stationary compressors**  
Schramm, Inc.



**Safe-torque tap driver**  
Scully-Jones and Co.

**Other Products:** "Roll-Lock" mandrels, arbors and chucks; floating holders; re-cessing tools, setup and grinding fixtures; drill & tap chucks; milling machine arbors and adapters; adjustable adapters and pre-setting gages; tap holders and drivers; engineering and design service.

**SEIBERT & SONS, INC.**  
Chenoo, Ill.

**Booth No. 432**

**Personnel:** O. R. Seibert, Pres.; O. M. Merrick, S.M.; W. F. Seibert, Vice. Pres.; C. P. Morgan, Rep.

**New Products:** Tap drivers, drill drivers, center drill drivers, woodruff key cutter drivers, reamer drivers, conversion sleeves, turret tool holders, cutter driver adapters, sockets, sleeves, tension & compression type tap driver, counter-bore drivers.

**Other Products:** Slip spindle assembly, bracket spindle assembly, arms, bracket, fastening devices, ball bearings, universal joints, upper & lower drives, pinion shafts, Shur-Lock adapter assemblies, Styles 800, 900 Shur-Lock extension adapter assemblies.

**THE SENTRY COMPANY**  
Foxboro, Mass.

**Booth No. 533**

**Personnel:** Gordon Wheeler, S. M.; B. B. Crocker and W. S. Robertson, Engineers; Geo. S. Ewing, Wm. H. Eckhard, H. F. Mura, John S. Gibson, W. Bryce McQuiston, representatives.

**Adapter assembly**  
Seibert & Sons Inc.



# RIGHT DOWN TO THE SMALLEST SIZE

*Every*

## **BOKUM BORING TOOL**

conforms to a uniform design characteristic of the Bokum line . . . recognized throughout industry for its unmatched quality.

*For top performance you can  
always depend on BOKUM  
ORIGINAL BORING TOOLS*

Available in both high speed steel, carbide-tipped, and solid carbide.

Two basic formulas contribute to the outstanding performance of Bokum Tools: 1) the mathematical formula of the design and 2) that of the material.

Use a Bokum Tool and you'll see the difference  
—Send for catalog.

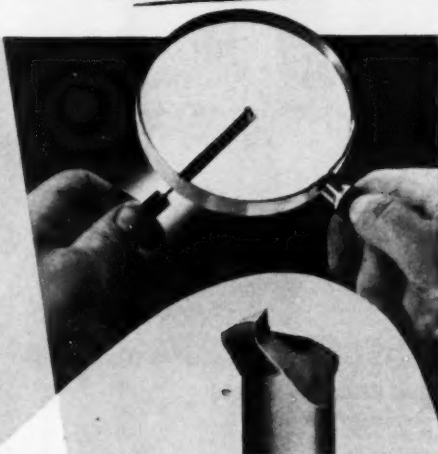


TRADE MARK REG. U.S. PAT. OFF.

Write Dept. H  
For Catalog

## **BOKUM TOOL COMPANY •**

14775 WILDEMERE  
DETROIT 38, MICHIGAN



This cutting head  
style A  
for through-boring

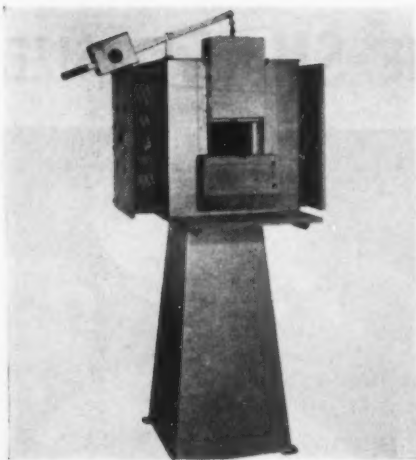


This cutting head  
style B  
for bottoming and facing



This cutting head  
style C  
for internal threading





**Steel hardening furnace**  
The Sentry Co.

**Products:** Newly redesigned Model Y high speed steel hardening furnace in operation. The furnace is heated by silicon carbide rod resistors located above and below the one piece silicon carbide muffle chamber. The furnace door is a monolithic refractory unit which is raised and lowered by a counterbalanced hand lever. Model Y furnaces are designed especially for use with the Sentry Diamond Block method of atmospheric control.

**SERVICE DIAMOND TOOL CO.**  
Ferndale, Mich.

**Booth No. 101**

**Personnel:** Louis Small Ray White, Bruce Fausone, Robt. Hazelton, Al. Walstrom, Robt. Slaughter, Fred Cammann, Jr.

**New Products:** New models of the Service Diamond Rockwell hardness tester have been improved so as to provide more efficient production and more accurate standardized testing; a newly developed series of motorized machines for either standard or superficial Rockwell testing, with complete shut-off or motorized components during the actual penetration.

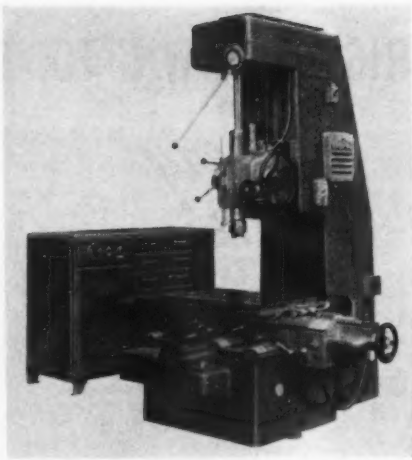
**SERVICE MACHINE COMPANY**  
Chicago, Ill.

**Booth No. 1716**

**SEVERANCE TOOL IND., INC.**  
Saginaw, Mich.

**Booth No. 813**

**New Products:** Light-weight, streamlined carbide hand file. Hard abrasive materials pose no problem for a file of this type and the usual 50 to 1 economy



**Rockwell tester**  
Service Diamond Tool Co.

of carbide over steel is gained. The file can be resharpened many times.  
**Other Products:** Midget mills countersinks; complete line of files and other cutting tools.

**SHEAR-SPEED CHEMICAL PRODUCTS**  
(Div. Michigan Tool Co.)  
Hazel Park, Mich.

**Booth No. 107**

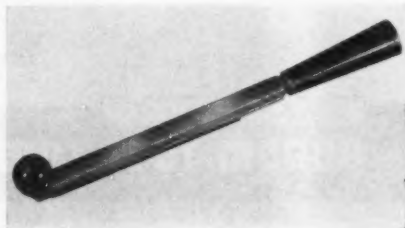
**New Products:** Shear-Speed soluble oil, new universal multi-viscosity coolant-lubricant for cutting, grinding and press work, will be displayed. Stocks of the new cutting fluid were made available to exhibitors operating equipment at the ASTE Exposition and will be used in a number of installations.

**THE SHEFFIELD CORP.**  
Dayton, Ohio

**Booth No. 325**

**Products:** Airetest indicator used as a height gage; electronic height indicator;

**Carbide hand file**  
Severance Tool Industries, Inc.

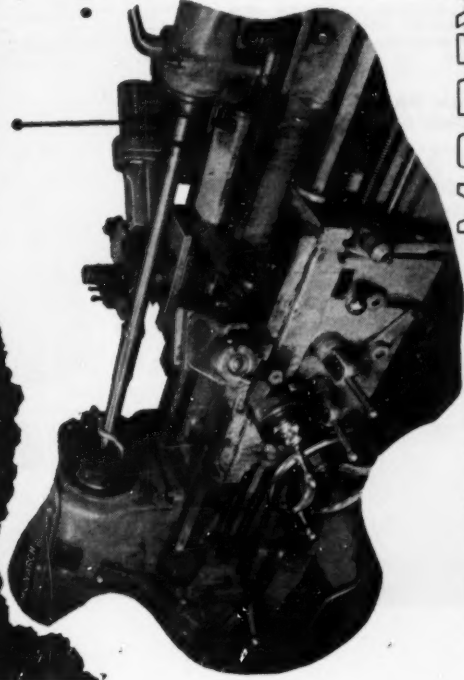


**NOW... High speed automatic  
copying on any lathe!**

**BONDYCOP**

**HYDRAULIC  
COPYING ATTACHMENT**

In Operation at the  
ASTE Philadelphia Show



- Does not interfere with operation of the lathe.
- You may use the front slide independently.
- For use on any standard lathe from 10" to 20".
- Can be used on rear slide of turret lathe.
- Simple 1 to 1 master is used; hard master not required.

The advantages of the BONDYCOP are many, but most important of all are the tremendous savings in time, money and labor!

An illustrated brochure giving  
full details may be had by writing  
to Department B-1

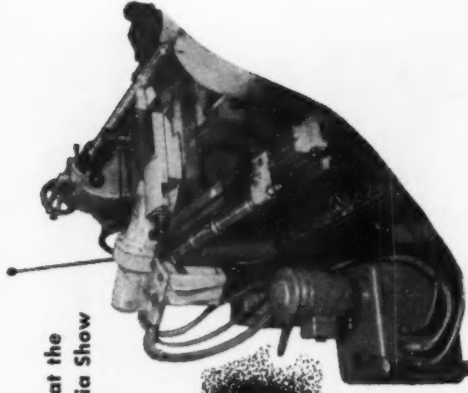
**MOREY**  
*...for machine tools!*

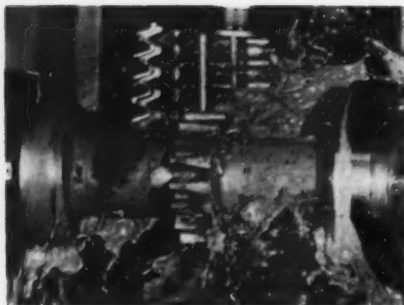
**MOREY MACHINERY CO., INC.**

Manufacturers, Merchants, Distributors

383 LAFAYETTE STREET, NEW YORK 3, N. Y.

ALGONQUIN 4-6560 • CABLE ADDRESS: WOODWORK, N. Y.





**Shear-Speed soluble cutting fluid.**  
Shear-Speed Chemical Prod., Div. of  
Michigan Tool Co.

electronic leadchek; adjustable balljet spindle kit; height gage stand incorporating a plunjet gaging cartridge connected to a column precisionaire T.S. lead measuring machine; lightweight adjustable air-bore gage kit; precisionaire jet engine blade gage.

**SHELDON MACHINE CO. INC.**  
Chicago, Ill.

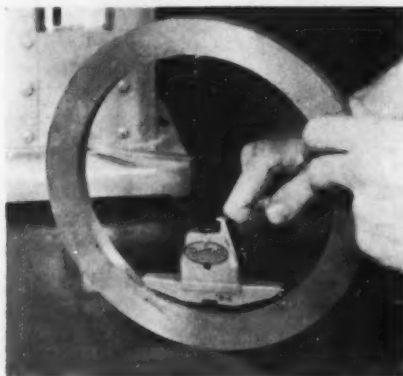
**Booth No. E10-12**

**New Products:** New 1954 models of lathes, milling machines and shapers, will include the first showing of the new Sebastian lathe, modern features designed for present-day industrial needs.

**SHERIDAN PRODUCTS, INC.**  
Inglewood, Calif.

**Booth No. 522**

**Lightweight adjustable air bore gage**  
The Sheffield Corp.



**Sebastian lathe**  
Sheldon Mach. Co. Inc.

**SIEWEK TOOL CO.**  
Detroit 2, Mich.

**Booth No. 408**

**Personnel:** Company distributors.

**New Products:** Fixture keys, spring plungers, spring stops, torque screws, toggle pads, swivel screws.

**Other Products:** Drill jigs, automatic fixture locks, fixture clamps, fixture details.

**SIMONDS ABRASIVE COMPANY**  
Philadelphia, Pa.

**Booth No. 314**

**Fixture Accessories**  
Siewek Tool Co.





GET

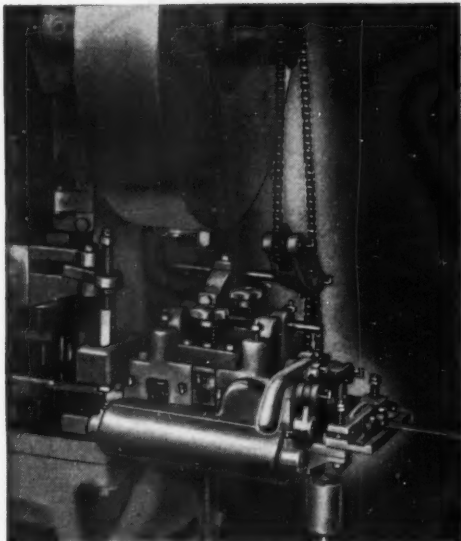
**RAPID-FIRE PRODUCTION**

*from your PUNCH PRESSES*

IT'S EASY WITH

**WITTEK**

**Automatic Roll Feeds**



Step up production by making your punch presses automatic! Wittek automatic roll feeds fit all makes and sizes of punch presses — provide maximum efficiency and extreme accuracy in the high-speed automatic feeding of strip stock. They are made in single roll, double roll, and compound types with straighteners, in models to feed (push or pull) in any of four directions. Length of feed is quickly and easily adjusted to meet individual job requirements.



4404

## **WITTEK Reel Stands**

### **Simplify Handling of Coiled Stock**

A choice of standard models is available to facilitate handling a large variety of coiled stock... from small, light coils to those weighing up to 800 pounds. These larger reel stands automatically center the coils and provide frictional braking action to prevent overrunning and maintain uniform coil slack.

*Write for full particulars*

**WITTEK Manufacturing Co.**

4321 W. 24th Place, Chicago 23, Illinois

*Automatic*  
ROLL FEEDS AND  
REEL STANDS



**hydraulic  
design  
gives you these  
advantages**

**hydraulic design**

is noted for its efficiency. Because of direct, straight-line application of smooth-flowing oil under pressure, more metal can be removed per horsepower expended.

**flatter finishes**

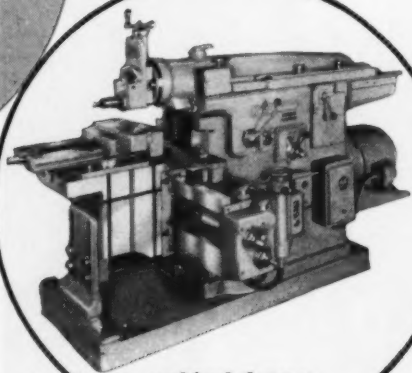
are possible with hydraulic drive because it contains no bearings, gears, links or joints, eliminating the possibility of chatter developing and transmitting gear marks to the work.

**cutting pressure is uniform** throughout each cut, thus working tools to maximum capacity.

**much higher return speeds** are secured after a smooth, shockless reversal.

**cutting speeds and feeds**

may be adjusted exactly to meet the requirements of your particular work, because the rate of these movements can be varied infinitely up to the maximum capacity of the machine. Cutting and return speeds are independent of each other.



**rockford shapers**

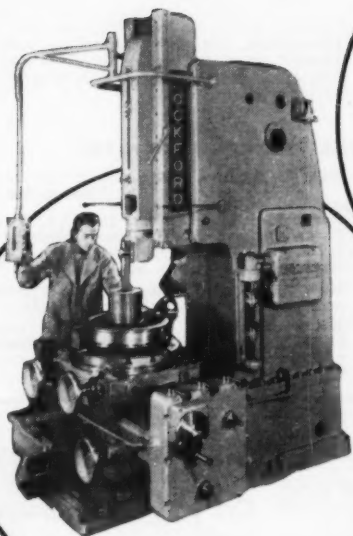
**automatic lubrication**

is an inherent quality of the hydraulic drive.

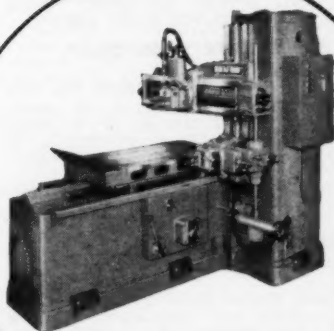
Ask a Rockford Machine Tool Co. representative to recommend the Rockford Hydraulic Driven Machine Tool for your needs.



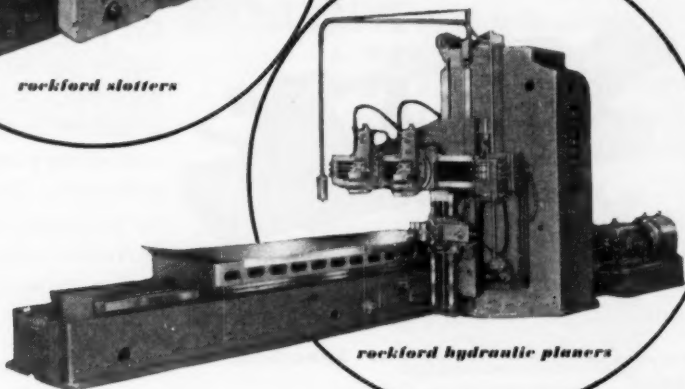
**Rockford Machine Tool Co.**



*rockford slotters*



*rockford openside shapers*



*rockford hydraulic planers*

shaping / planing / duplicating / turning **Rockford, Illinois**



**SIMONDS SAW AND STEEL CO.**

Fitchburg, Mass.

**Booth No. 314****Personnel:** James Doubleday, Warrin Foster, Robert Smith, Eugene Porter.**Products:** Complete line of circular metal cutting saw blades; power hack saw blades (also hand blades); machine shop files; metal cutting band saw blades; flat ground die steel; rotary shear knives; squaring shear blades.**SIMPLEX MACHINE TOOL CORP.**

Milwaukee 46, Wis.

**Booth No. 1555****Personnel:** R. P. Bieszk, L. G. Neff, L. G. Neff, Jr., F. Berger, P. O. Wernicke, F. W. Ellis, P. E. Butzin, L. E. Kearney, R. W. Hallade, E. W. For-maker, S. A. Krimmer.**Products:** Simplex precision boring machines.**SIZE CONTROL CO.**

Chicago, Ill.

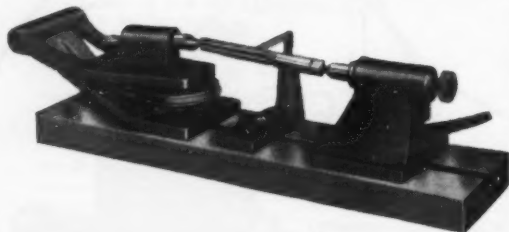
**Booth No. 332****Personnel:** Ernie Olds, Frank Hlavek, Chuck Loeser, Bill Schroeder, Wallace Carroll, Jay Korest, R. L. Guimont, T. C. Froeberg, L. Hammond, Bill Peterson, Tom Owen, Pete Sommer, Jr., Ernie Isberg, Jim Summers.**New Products:** Universal handles, reversible AG handles (color).**Other Products:** Reversible plain and**Plain, thread plug gages**

Size Control Co.

thread plug gages, thread and gear measuring wires, snap gages, plug and thread rings, taperlock plain and thread plugs, special gages, cabinet sets, master setting discs.

**THE SKINNER CHUCK CO.**

New Britain, Conn.

**Booth No. 1808****Personnel:** K. H. Walther, R. A. Bowers, R. D. Cutler, Jr., William Rogers, Paul K. Rogers, Jr., D. M. Stevenson, Anders Anderson, William Mann.**New Products:** The GF work drivers, power operated drill press unit.**Other Products:** Hand and power chucks, machine vises and solenoid electric valves.**G&F "Sharp-Grind" will save you money**

Cut your tool grinding costs by sharpening tools right in your own plant with this time and money saving attachment. Fits most surface grinders with movable bed and the simple adjusting screw makes it easy to sharpen tapered, spiral and straight reamers, milling cutters and end mills.

**Mail Today For Specifications and Prices**

NAME.....  
 ADDRESS.....  
 CITY.....STATE.....

**GRINDERS & FIXTURES, INC. 8327 Clinton Rd., Cleveland 9, Ohio**



**Work drivers**  
The Skinner Chuck Co.

**ANTON SMIT CO., INC.**  
New York, N.Y.

**Booth No. 404**

**SOCONY-VACUUM OIL CO., INC.**  
New York, N.Y.

**Booth No. 1327**

**SORENSEN CENTER-MIKES, INC.**  
Bridgeport, Conn.

**Booth No. 233**

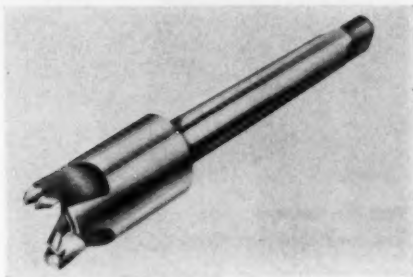
**Personnel:** George E. Sorensen, Otto E. Sorensen, Frank Gooby, Julius Hull.

**New Products:** "Center-Mike" center-distance gage (bench type); "Roto-Mike" precision layout and inspection fixture.  
**Other Products:** Center-Mike (hand type).

**SPIRAL STEP TOOL CO.**  
Chicago, Ill.

**Booth No. 1351**

**Personnel:** C. T. Breitenstein; Frank Palermo; Les Oller; Swen Lindstrom.  
**Products:** Circular and dovetail carbide inserted tools and high speed step drills, special high speed cutting tool, miscellaneous designs.



**High speed cutting tool**  
Spiral Step Tool Co.

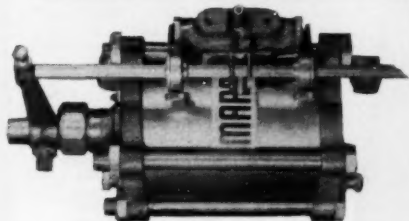


## MICRO-VALVE

THE MICRO VALVE is an entirely new bleeder type unit employing a direct and instantaneous piston action which makes possible micrometer limits of .001" for control of stroke or depth. Stroke and speed can be controlled in either direction—suitable for automatic or semi automatic operation on many machine tools—DRILL, —BROACH—REAM or TAP with controlled stroke—easily adapted to new or existing equipment. MARCH will modify or engineer the proper conversion of your machines. Air and hydraulic cylinders in all sizes to your exact specification—or from stock.

- Micrometer action
- Pressure operated
- Full or semi automatic control
- INVESTIGATE APPLICATIONS TO NEW MACHINE TOOLS

**MARCH ANNOUNCES THE NEW  
MICRO VALVE** IN COMBINATION WITH  
A COMPLETE LINE OF AIR AND  
HYDRAULIC CYLINDERS FOR  
MACHINE TOOL CONVERSION.



**30 YEARS OF  
QUALITY PRODUCTS**

**MARCH AUTOMATIC PRODUCTS CO.**  
1355 SPRING STREET  
MUSKEGON, MICH.



**Vari-tool finisher**  
Standard Electrical Tool Co.

**THE STANDARD ELECTRICAL  
TOOL CO.**  
Cincinnati, Ohio

**Booth No. 538**

**Personnel:** W. A. Ferguson, R. A. Huhn, J. J. Falls, J. J. Klopp, R. C. Dalton, V. R. Lagaly, W. J. Holtmeier, J. Reid, R. J. Ferguson.

**New Products:** Type 67 Vari-Tool finisher; solid carbide platen permits micro finish of end, top and side clearance angles on single point tools without diamond wheel or highly skilled operators.

**Other Products:** Twin wheel carbide tool grinder, single wheel wet tool grinder, speed lathe, precision internal and external grinder, vertical spindle grinder with feeds, special and standard belt and motor driven precision spindles.

**STANDARD GAGE COMPANY, INC.**  
Poughkeepsie, N.Y.

**Booth No. 238**

**Personnel:** Erik Aldeborgh, Pres.; John Aldeborgh, Vice Pres.; Noel deCordova, S.M.; Earl M. Boat, Research Eng.; Harry A. Babb, Robert C. Gould, C. H. Jacobs, Sales Engineers; E. L. Sweet, Pur. Agent; David Aldeborgh; Harry Carlson Design Eng.; Geo. E. Hanselman, Sales Eng.; Milton T. Broucek; John P. Zeleznik; Nils Larson.

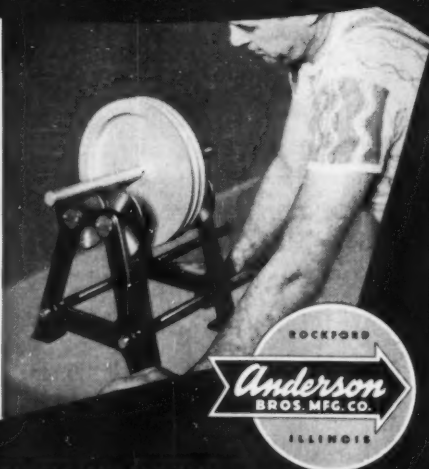
**New Products:** No. 000 and No. 0000 dial bore gages; important development in Dializers, which convert A.G.D. snap gage frames to dial snap gages. This development consists of new models of Dializers whereby indicators of the Nos.

## PRECISION BALANCING WAYS

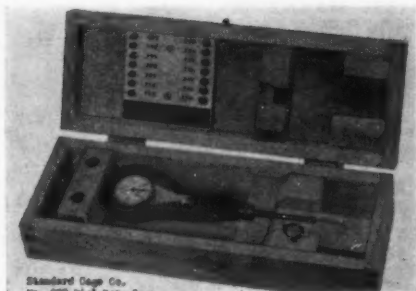
### Save Time . . . Cut Cost

Balance rotating parts easier, faster, more accurately with supersensitive Anderson Balancing Ways. No setup, no leveling, no centering. Chilled iron discs, ground and balanced to extreme accuracy, rotate with minimum friction on special bearings. Glass-hard spindles and bearings prevent wear or ball-bearing indentations when balancing heavy weights. Superior accuracy lasts throughout long life. Proved and preferred 38 years. Write for bulletin 4-5.

Swing	Between Standards	Capacity in lbs.
20 in.	20 in.	1,000
40 in.	30 in.	2,000
60 in.	30 in.	2,000
72 in.	66 in.	5,000
96 in.	88 in.	10,000



ANDERSON BROS. MFG. CO., ROCKFORD, ILLINOIS



**Dial bore gage**  
Standard Gage Co., Inc.

1 and 2 A.G.D. sizes can be used, in addition to midget indicators, making a wide choice of indicator sizes and graduations.

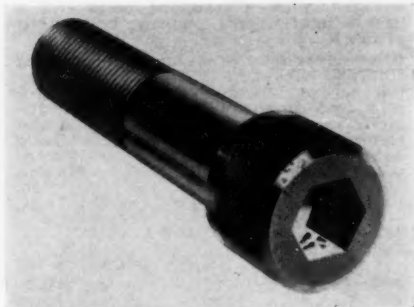
**Other Products:** Comprehensive line of dimensional gages.

**STANDARD PARTS COMPANY**  
Bedford, Ohio

Booth No. 911

**STANDARD PRESSED STEEL**  
Jenkintown, Pa.

Booth No. 1539



**Precision bolts**  
Standard Pressed Steel

**Personnel:** George C. Somes, Jr., Bennett D. Jones, Chas. J. Betz, Harry L. Smith, Donald Hartman, John Wilson, Crawford Maxson, Robert W. Dando, Donald Seward, J. W. Shields, L. H. Clark, Geo. A. Gade, Francis J. Kinsella, Aldred W. Scott, Henry R. Hallowell, Jr., Franklin P. Jones, Eugene F. McGarvey.

**New Products:** New standardized series of big socket-head bolts, up to 3" dia., for the larger presses and machine tools, and a line of double-life, cold-

# STOP DUSTS INSTANTLY

with

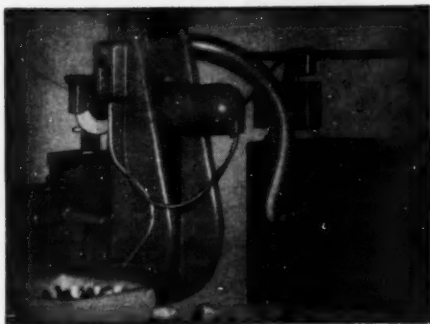
## DUSTKOP

Available from stock of 32  
standard models

**300 cfm to 10,000 cfm**

**for:** Surface Grinders, Tool and Cutter Grinders; Polishers and Buffers; Abrasive Belts and Discs; Woodworking and Plastic Industry Equipment . . . DUSTKOPS collect almost all kinds of industrial dusts.

**Ask for Catalog 605-3. Describe dust problems for recommendation by return mail — no obligation.**



**AGET-DETROIT CO.**

502 Main St. Ann Arbor, Michigan

worked military standard bolts and a line of light-weight titanium bolts, both primarily for aircraft.

**Other Products:** Regular SPS lines of Unbrako socket-head cap, flat and button screws, socket set screws, dowel pins and pressure plugs, Flexloc all-metal locknuts, Sel-lok spring pins and Hallowell work benches and other shop equipment, with emphasis on Micro-screws, socket-head cap screws and socket set screws in sizes 0-80, 1-64, 1-72, 2-64, 2-56, 3-56, 3-48, 4-40 and 4-48.

**THE STAPLES TOOL CO.**  
Cincinnati, Ohio

Booth No. 297

**Personnel:** Chas. M. Carr, M. J. Chandler, Richard J. Kemme, Robert F. Maurath, John P. Long, Frank Burgan, Norman H. Iversen, W. H. Nettle, P. F. Hoey, M. A. Siebert, Ed Galvin, M. E. Staples.

**Products:** Precision carbide tipped circular cutting tools.

**L. S. STARRETT CO.**  
Athol, Mass.

Booth No. 211

**New Products:** New dial indicators.

**Other Products:** Complete line of products.

**STEEL CITY TESTING MACHINES, INC.**  
Detroit, Mich.

Booth No. 1316

**STEEL MAGAZINE**  
Cleveland, Ohio

Booth No. 1217

**THE STEEL PRODUCTS ENG. CO.**  
(Brehm Die Division)  
Springfield, Ohio

Booth No. 622

**STEWART-WARNER CORP.**  
**ALEMITE DIVISION**  
Chicago, Ill.

Booth No. 1319

**EDWIN B. STIMPSON CO., INC.**  
Brooklyn, N.Y.

Booth No. 1203

**STONE MACHINERY COMPANY, INC.**  
Syracuse, N.Y.

Booth No. 541

**STRONG, CARLISLE & HAMMOND CO.**  
**MAC-IT DIVISION**  
Cleveland, Ohio

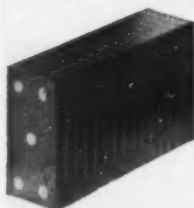
Booth No. 410

**Personnel:** G. E. McCreery, R. N. Twitcheil, W. O. Clark, E. G. Buchholz, R. W. Dicely, D. E. Dicely.

**New Products:** Hollow lock screws.

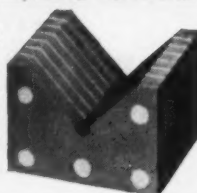
**Other Products:** Complete line of Mac-It alloy steel threaded fasteners including socket head cap screws, hollow set screws, hollow lock screws, square head set screws, tool post screws and other standards as well as a variety of specials.

# **SPEED UP YOUR GRINDING SET-UPS** **MAGNETIC CHUCK PARALLELS "V" BLOCKS**



No.	Size	Matched Pair
IP2	1x2x2	\$16.50
IP3	1x2x3	19.50
IP4	1x2x4	22.50

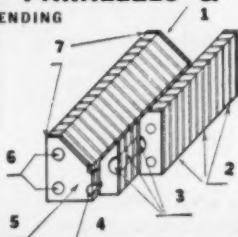
No.	Size	Matched Pair
IV2	1 3/4 x 2 1/2 x 2	\$22.50
IV3	1 3/4 x 2 1/2 x 3	33.75
IV4	1 3/4 x 2 1/2 x 4	45.00



Price includes Hardwood Box.

## **CONSTRUCTION FEATURES OF PARALLELS & "V" BLOCKS** PATENT PENDING

1. "V" in "V" block ground parallel to base and centered.
2. Spring-temper, phosphorous bronze non-magnetic laminations.
3. Positive, mechanical lock, non-shift laminations. Patent pending.
4. Dowels welded to end plates.
5. End plates ground square.
6. Five hard temper silicon bronze dowels.
7. 1/8" end plates welded and ground square.

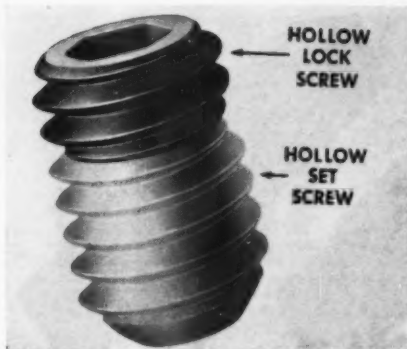


Ground parallel and square

**PRECISION EXACTNESS AND HIGHEST QUALITY**

P.O. BOX 6715  
8205 Clinton Road  
Cleveland Ohio

Distributed Nationally by **GROVER-SAYLE CO.**



HOLLOW  
LOCK  
SCREW

HOLLOW  
SET  
SCREW

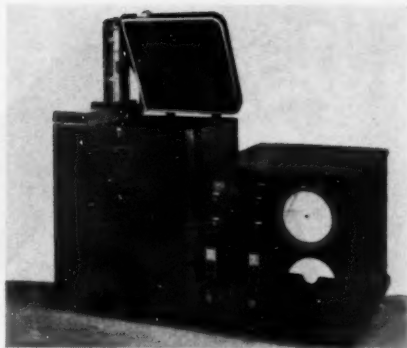
Hollow lock screws  
(Mac-It Screw Div.)  
Strong, Carlisle & Hammond

**SUB-ZERO PRODUCTS CO.**  
Cincinnati, Ohio

**Booth No. 2151**

**Personnel:** Robert J. Jacobson, Pres.;  
Rolland Jamison, Chief Eng.; Stanley  
Waller, Sales Eng.; Ted Fredericks,  
Prod. Eng.

**Products:** Two industrial chilling  
machines, Model R-120 and Model V-120.

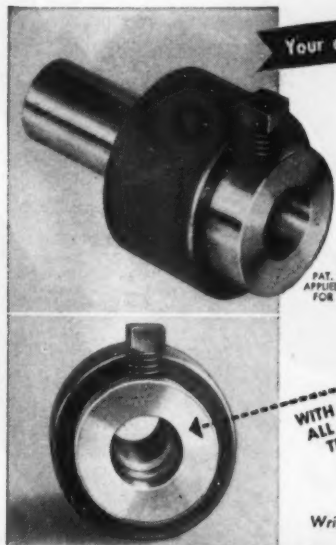


**Model R-120 sub-zero chilling machine**  
Sub-Zero Products Co.

Each of these is designed to operate at  
temperatures down to 150° below zero.  
The difference between them is that  
the R-120 has a capacity of 10 cubic  
feet, while V-120 has a capacity of 4  
cubic feet.

**SUNNEN PRODUCTS COMPANY**  
St. Louis, Mo.

**Booth No. 1803**



Your automatic screw machines are "No Better than their Tools"

**THE GREATEST TAP HOLDER  
IMPROVEMENT IN YEARS!**

**AMCAM  
TAP HOLE-DER**

WITH THE HOLE  
ALL THE WAY  
THROUGH

Write for full details.

- Eliminate downtime for cutting off taps—  
revolutionary through hole design permits  
use of full length tap.
- Save time removing broken taps—simply knock  
the shank out through the back of the holder.
- Save taps for reuse—description is never  
ground off with the shank. Taps are always  
identifiable for reuse.

**AMERICAN CAM COMPANY, Inc., Hartford 1, Conn.**





Handle any Cutting Job . . . Cut your Cutting Costs—with

<sup>®</sup>  
**CARMET**

The Allegheny Ludlum line of Carmet Carbide Tools is *complete*—every style, size and grade you may need for any cutting job in the shop. If you make your own tools, a full line of blanks is available, too—as well as all necessary sizes of A-L Shank Steel. Extensive stocks of Carmet standard tools and blanks are carried in Distributor's warehouses coast to coast, and special tools are available to order.

- Just remember, for best performance on any application, use Carmet! Allegheny Ludlum Steel Corporation, Carmet Division, Wanda and Jarvis Avenues, Detroit 20, Michigan.

*What other  
jobs have you  
for CARMET  
to do*

We specialize in precision pre-forming of Carmet carbide metals to *any* shape for special wear-resistance needs, such as dies, gage blanks, etc. Let us quote on *your* requirements.

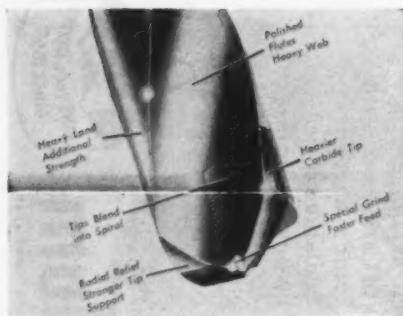
*Write for your  
copy of the new*  
**CARMET CATALOG**

ADDRESS DEPT. MB-52



For complete **MODERN** Tooling, call  
**Allegheny Ludlum**

W&D 4928



**New carbide drill**  
Super Tool Co.

**SUPERIOR HONE CORPORATION**  
Elkhart, Ind.

**SUPERIOR STEEL PRODUCTS CORPORATION**  
Milwaukee, Wis.

**Booth No. 1320**

**Booth No. 103**

# **SUPER TOOL CO.**

Detroit 13, Mich.

**Booth No. 623**

**Personnel:** Birgbauer, Pres.; M. J. Steffes, S. Mgr.; Walleman; Fisher; Prosch.

**New Products:** New design of twist drill; solid carbide items.

**Other Products:** Entire line of cutting tools.

# **SWANSON TOOL & MACHINE PRODUCTS, INC.**

Erie, Pa.

**Booth No. 1968**

**Personnel:** Leonard Swanson, Pres.; Chester Merchant, Chief Eng.

**New Products:** Power-DI press unit, turret indexing unit, v-liner inspection unit, turret turntable. Turret indexing units (illustrated) designed as basic intermittent-motion chassis for special automatic machines for a variety of manufacturing operations on small and medium parts. Available in a wide range of turret diameters.

# **SWARTZ TOOL PRODUCTS**

Detroit, Mich.

**Booth No. 843**

**Want to KEEP PRODUCTION HUMMING — at lower cost?**



**O. B. I. PRESS**



**DEEP THROAT PRESS**



**HORN PRESS**



Then check up on

**ROUSSELLE PRESSES**



These jobs will stand up under severe service—and they're fast . . . accurate . . . steady. Modern precision machining (stressing ruggedness and simplicity) has seen to that. But it also accounts for their very low maintenance, surprisingly low cost and broad, all-around versatility. With Rousselle presses you can shear, punch, bend and form metals; cut and punch paper; form and trim fibre and plastics and handle other materials.

Since considerable savings are often possible, if you let our engineering staff assist you, we will be glad to cooperate. There is no obligation. Simply explain problem and send sample or drawing of work.

Rousselle Presses are sold exclusively through leading Machinery Dealers and are Manufactured by

**SERVICE MACHINE CO.**  
7627-33 S. Ashland Ave., Chicago 20, Ill.

See these machines in operation at our Booth No. 1716, A.S.T.E. Show, April 26-30, Philadelphia, Pa.



**Turret indexing unit**  
Swanson Tool & Machine Products, Inc.

**SYNTRON COMPANY**  
Homer City, Pa.

**Booth No. 1960**

**Personnel:** S. D. St. Clair, G. T. Lebrato, P. C. Zanotto, D. G. Black, J. W. Philipovic, A. Murray Metz, E. B. Junker, T. S. James, Charles E. Rutledge, Ralph Morgenstern, E. A. Kreuder, J. K. Campbell, V. E. Garsch, John Sirles, R. C. White, F. X. Waldvogel, L. R. Morgan.  
**Products:** Syntron vibratory parts feeders, balanced dual-trough vibrating conveyors and screens, selenium rectifiers, rotary shaft seals, and vibratory feeders.

**THE TAFT-PEIRCE MFG. CO.**  
Woonsocket, R. I.

**Booth No. 210**

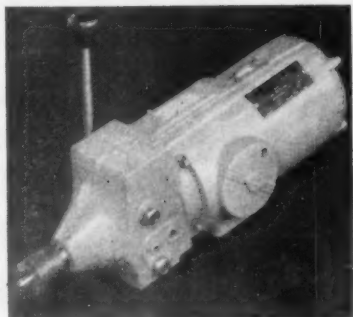


**Vibratory parts feeder**  
Syntron Co.

**Personnel:** Frederick S. Blackall, Jr., F. Steele Blackall, III, Walter E. Rogers, Franklin Meyer, Jr., Roy Winn, F. Curtis Fales, Wendell E. Carney, Richard F. Coe, Clinton Jacks, Paul V. Miller,



## "SUB ASSEMBLY BOTTLE NECK"



Illustrated above is a Model 1M Fen Automatic Wrench, which has a maximum torque of 250" lbs. at a spindle speed of 60 rpm.

For detailed information regarding the application of the Fen Automatic Wrench to your machines, phone, wire or write.

The Fen Automatic Wrenches are being used for driving pipe plugs on bench assemblies, operating fixtures on transfer machines and indexing machines.

The Fen Wrench will Banish "Wrench Wrestling" and increase production.

The Fen Wrench can be operated manually by push button or made completely automatic.

**Why not send your wrench problems to us?**

**THE FEN**  
**MACHINE COMPANY**  
28915 LAKELAND BLVD.  
WICKLIFFE, OHIO

J. Harold Smith, Clifford Stead, Richard V. Freeman, Richard Read, Russell Shepherd, Robert S. Ford.

**New Products:** Taft-Peirce "Multiplex" angle irons.

**Other Products:** CompAIRator air gage units, including the computing CompAIRator; fixed and special gages, including both models of "Rotochek" power thread gaging units; magnetic chucks, including Superpower magnetic chucks and the new Superpower permanent magnet chuck; toolroom equipment, including granite surface plates and the new "Multiplex" angle irons; gage blocks and universal angle gages.

**TAYLOR DYNAMOMETER AND MACHINE CO.**  
Milwaukee, Wis.

Booth No. 127

**Personnel:** Arthur C. Flamme, Partner-Gen. Mgr.; Howard G. Marquardt.

**Products:** Taylor Hi-Eff sensitive precision drilling machines and Hi-Max universal static balancing machines. The latter (illustrated) has direct reading spirit level, pedestal and nicking stand. For pieces without bores, adapters are available. Features are simplicity of design and construction coupled with precision and ruggedness.

**TINIUS OLSEN TESTING MACHINE CO.**  
Willow Grove, Pa.

Booth No. 1213



**Balancing machine**  
Taylor Dynamometer & Mach. Co.

**THE TEXAS COMPANY**  
New York, N.Y.

Booth No. 831

**TO SPARK PRODUCTION**

Model "D"

**BORING**

**FACING**

**TURNING**

**GROOVING**

**UNDERCUTTING**

**ALL IN 1 TOOL-HEAD**

A Boring Head that Won't Face is Not Complete

Write Today for Complete Details

**CHANDLER TOOL COMPANY**  
MUNCIE, INDIANA

COMBINED BORING & FACING TOOL HEADS

**Chandler Duplex**

*Air-O-Check*

THE VALVE WITH THE INTERNAL FULCRUM LEVER

Model FA

Model A

For blowing chips from work — For cleaning out hollow sets, machine recesses and tee slots — For drying parts before inspection and for many similar uses, Air-O-check is the Air-gun.

Write for details.

**AIR-WAY PUMP & EQUIPMENT CO.**  
1054 N. Kilbourn Ave. Chicago 51, Ill.

**THREAD-ALL SALES COMPANY**

Detroit, Mich.

Booth No. 2120

**TIDE WATER ASSOCIATED OIL  
COMPANY**

New York, N.Y.

Booth No. 1712

**TOCARO MACHINERY COMPANY**

Philadelphia, Pa.

Booth No. 1961

**TOCCO DIVISION  
THE OHIO CRANKSHAFT CO.**

Cleveland, Ohio

Booth No. 1554

**THE TOOL ENGINEER**

Detroit, Mich.

Center Bldg.

**TOOLING AND PRODUCTION**

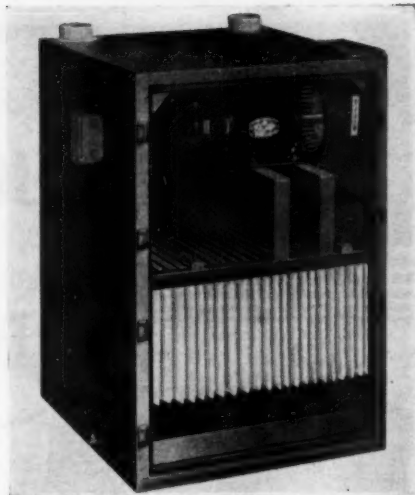
Cleveland, Ohio

Booth No. 1965

**THE TOMKINS-JOHNSON CO.**

Jackson, Mich.

Booth No. 1247



Dust collector  
Torit Mfg. Co.



***Engineered Live Centers***

... A properly designed Live Center is one of the fundamentals of setting up a job and requires a specialist's experience. Characteristic of the design of all STURDIMATIC LIVE CENTERS is a low overhang and a slight cushioning action that compensates for expansion due to heat shock and excessive thrust loads—reducing wear to a minimum. Send us your blueprints and specifications—we will see that your job is set up with the right Live Center. Standard shanks with Morse taper carried in stock.

**STURDIMATIC  
TOOL COMPANY**

1302 F STREET • DETROIT 16, MICH



For Extreme  
Accuracy →

You Can Depend on

## JOHANSSON GAGING EQUIPMENT



**It Assures You Precision to the  
Finest Degree, — to Meet Your  
Most Exacting Requirements —**

**Backed by the Name  
Supreme in the World  
of Measurement.**

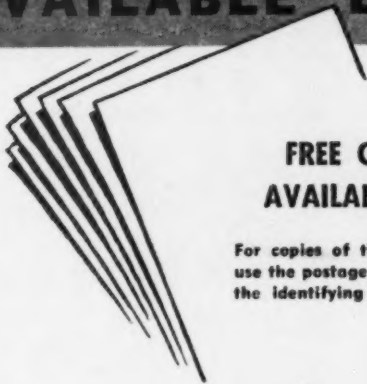
- **GAGE BLOCKS**  
(JOHANSSON) and accessories. Short deliveries. Inspection and reconditioning service available at our plant.
- **INTERNAL INDICATORS**  
(for inside measurements .155 to 24 inches). Scale range plus or minus .001 graduated to .0001 and minus .020 graduated to .0001.
- **MIKROKATOR**  
(Amplifier — for outside measurements) Graduations .0001 to .000002 or .001 M to .0002 M.
- **OTHER JOHANSSON PRODUCTS**  
Micrometers, Snap gages, Extensometers, Dynamometers, Hardness Testers, Surface Finish Indicators.

*Write for Literature*

**C. E. JOHANSSON GAGE CO.**

10641 HAGGERTY AVENUE, BOX 4086 NORTHEASTERN STATION, DEARBORN 1, MICH.

# AVAILABLE LITERATURE



## FREE CATALOGS AND BULLETINS AVAILABLE FROM MANUFACTURERS

For copies of the literature in which you have an interest, use the postage-paid postcard on the next page. Merely circle the identifying numbers and mail the postcard.

**1. Grinding Handbook.** A handbook recently published by Landis Tool Co., Dept. BB, Waynesboro, Pa., provides information about important factors that determine the performance of center type cylindrical grinders. It contains charts of grinding wheel speeds and gradings.

**2. Spot Facing Tool.** Literature on the Mummert-Dixon compound spot facing tool with retracting roughing cutters and fixed finishing cutters, all in the same unit, is available from Mummert-Dixon Co., Dept. B, 122 Philadelphia St., Hanover, Pa.

**3. Automatic Tapper.** The Commander automatic tapper with lead screw, an electrically controlled lead screw tapping attachment for automatic or semi automatic high production tapping, is described in a booklet available from Commander Mfg. Co., Dept. B, 4227 W. Kinzie St., Chicago 24, Ill.

**4. Precision Press Feeds.** Literature on precision feeds for all types of presses has recently been published by Roll-Feeds Corp., Dept. BB, Pawtucket, R.I.

**5. Milling Machine.** Brochure on the Bradley horizontal milling machine with vertical head and slotting attachment, swivel table—Model C-4—has recently been published by Bradley Machinery Co., Dept. MB, 211 Jos. Campau Ave., Detroit 7, Mich.

**6. Die Stops.** Automatic stops for compound dies are illustrated and described in the latest brochure from Searjeant Metal Products Inc., Dept. B, Mendon, N.Y.

**7. Perforators.** American standard perforators designed for exacting demands of modern die engineering and die making practice are shown and described in a booklet available from American Standard Perforators, Dept. BB, 4878 W. Grand Ave., Chicago 39, Ill.

**8. Lapping Machines.** An attractive brochure explaining typical lapping operations, lapping machines, and other information is available from Spitfire Tool Co., Dept. B, 2931 N. Pulaski, Chicago, Ill.

**9. Single Layer Diamond Wheel.** Super-Cut Distributors, Inc., 3418 N. Knox Ave., Chicago 41, Ill., has just published a series of three brochures describing various applications and uses for their new single layer diamond wheel. A new electroplating process bonds diamonds in a hard, nonloading nickel.

**10. Files.** Vixen milled curved-tooth files, manufactured by Heller Bros. Co., Heller Drive, Newcomerstown, Ohio, are illustrated and described in a very comprehensive booklet recently published by the company.

## THIS HELPFUL LITERATURE NOW AVAILABLE

**11. Internal Diameter Gages.** Boremaster internal diameter gages are described and shown, along with various applications, in a colorful brochure available from WJZ Tool Specialties, Dept. B, Hyde Park, N.Y.

**12. Vernier Depth Gage.** The Koenig two seat vernier depth gage made by Wm. A. Koenig, Dept. B, 168 Mt. View Ave., Troy, N.Y., is fully described in a booklet recently made available from the company.

**13. Automatics.** A very comprehensive illustrated catalog of 32 pages contains a detailed description of the design, construction, specifications, applications, attachments and tooling obtainable for the Traub automatics available from Guthery Machine Tool Corp., Dept. B, 130 W. 42nd St., New York 36, N.Y.

**14. Rustproofing.** Twelve types of rust preventative, non-corrosives, etc., are described in literature available from Fiske Bros. Refining Co., Dept. MB, 135 Lockwood St., Newark 5, N.J.

**15. Milling Speeds and Feeds.** Milling speeds and feeds at a glance, for Auto-lock two-flute end mills, can be obtained with the Clarkson operators' slide rule, available from Clarkson Inc., Dept. B, 320 Ontario St., Toledo, Ohio.

**16. Tap Chuck, Internal Pipe Wrench.** Literature available from Roddick Tool Co., Dept. B, 1023 N. Pauline, Anaheim, Calif., describes and illustrates the universal tap chuck and "Wedge-Pruf" extractor internal pipe wrench.

**17. Flexible Shaft Machines.** Recently published is a comprehensive catalog containing information on the flexible shaft machines and accessories for every small-work job of grinding and finishing, manufactured by Foredom Electric Co., Dept. BB, 27 Park Pl., New York 7, N.Y. Ask for Catalog No. 190.

**18. Cam Automatics.** Cam automatics, single or double-spindle models, manufactured by the Motch & Merryweather Machinery Co., Dept. MB, Penton Bldg., Cleveland 13, Ohio, are illustrated and described, along with case histories, in the latest brochure published by the company.

**19. Wire Brushes, Deburring.** Fully illustrated brochures describe the different brushes made by the Osborn Mfg. Co.,

5401-4 Hamilton Ave., Cleveland 14, Ohio, along with case histories and descriptions of the brushing machines manufactured by the company.

**20. Tapping, Threading.** A new circular showing various fast methods for lathe tapping and threading, and also hand tapping of large work right on the drill press, is available from Lassy Tool Co., 108 Bohemia St., Plainville, Conn.

**21. Precision Holding Fixtures.** Catalog No. 953, of 44 pages, contains full descriptions and illustrations in two colors of the extensive line of precision holding fixtures for machine shop production manufactured by Swartz Tool Products, Div. of Jefferson Corp., Dept. E, 13330 Foley Ave., Detroit 27, Mich.

**22. Feed, Speed Calculator.** Available without charge, the new Wendt-Sonis feed and speed calculator, suitable for all carbide machining operations, will be sent by writing Wendt-Sonis Co., Dept. B, Hannibal, Mo.

**23. Meehanite Castings.** The Meehanite Metal Corp., Dept. MB, 714 North Ave., New Rochelle, N.Y., has prepared a new 48-page bulletin, No. 43, entitled "Meehanite Castings for Pressure Tightness." The volume contains 64 illustrations of specific industrial applications and provides engineering property charts and pressure casting design suggestions.

**24. Stretch Forming.** Design engineers' Bulletin No. 1 is an informative pamphlet on stretch forming methods. Write the Cyril Bath Co., 32320 Aurora Rd., Solon, Ohio.

**25. Wire Straightening, Cutting Machines.** Mettler Machine Tool, Inc., Dept. BB, New Haven 11, Conn., has announced a new folder, Bulletin No. 58, on their line of Shuster constant speed automatic wire straightening and cutting machines ranging in capacity from .025" to 1/2" dia. wire.

**26. Vertical Turret Mills.** A new Rogers catalog, just off the press, fully illustrates and describes Rogers "Perfect 36" vertical turret mills; shows various operations, such as boring, drilling, turning and threading, as well as complete specifications. Write Rogers Machine Wks., Inc., Dept. MB, 1400 Seneca St., Buffalo 10, N.Y.

## SENT FREE UPON RETURN OF POSTAL CARD

**27. Metal-Cutting Saw Blades** Victor Saw Wks. Inc., Dept. B, Middletown, N.Y., offers a free 28-page pocket guide for users of metal-cutting saw blades. The how-to booklet offers helpful information on proper blade selection and use.

**28. Marketing Operations.** Help for small manufacturers in gearing their marketing operations for stiffer competition is offered in a new booklet published by the Small Business Administration, U.S. Sup. of Documents, Washington 25, D.C. The booklet is entitled "Making Your Sales Figures Talk." Price, 20 cents.

**29. Drilling Machine.** An attractive two-color brochure describing the Model 8-18 drilling machine has recently been published by the I. O. Johansson Co., Dept. BB, Skokie, Ill.

**30. Competition.** Industry's own evaluation of the new manufacturing equipment and processes needed to survive the competitive days ahead is reported in a 16-page 2-color booklet just released by the American Society of Tool Engineers, 10700 Puritan Ave., Detroit 21, Mich. It is entitled "Are You Ready to Meet Stiff Competition?" A very revealing resumé of industry today.

**31. Cam Dies.** The Octocam, designed to be used on all cam action dies, is said to

save much time and to simplify operations. It is illustrated and described in a leaflet obtainable from Octavia Tool & Gage Co., Dept. MB, 3320 N. Kedzie Ave., Chicago 18, Ill.

**32. Bases, Cast Iron and Pressed Steel.** Circular 226, on cast iron and pressed steel bases, describe and illustrate these products manufactured by Elliott Mfg. Co., Dept. B, 350 State St., Binghamton, N.Y.

**33. Lubrication Information.** A recently released 146-page book, "Symposium on Diesel Locomotive Engine Maintenance," provides valuable information on lubricating oils, filters, water treatment, and recent applications of the electron microscope. It may be obtained by writing Public Relations Dept., American Locomotive Co., Dept. B, Schenectady 5, N.Y.

**34. Bearings.** Heavy duty, self-lubricating Oilite bearings, core, bar and plate stock are all described and illustrated, along with tables and helpful information in the new catalog listing more than 700 standard bearings, etc., available from Amplex Div., Chrysler Corp., Dept. BB, Detroit, Mich.

**35. Twist Drills.** A variety of types is described in the new brochure on twist drills, including taper shanks, straight shanks, three & four fluted, drill sets,

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**WHEATON, ILLINOIS**

drill blanks, countersinks, hardened sleeves. Available from the DoAll Co., Dept. BB, DesPlaines, Ill.

**36. Rivets.** A catalog recently published by Cuyahoga Rivet and Screw Co., Dept. B, 3601 Croton Ave., Cleveland 15, Ohio, describes and illustrates their complete line of ferrous and non-ferrous rivets and screws. Of special interest are the several types of rivets, such as the 60°, 78°, and 100° countersunk head.

**37. Center Hole Drilling.** The Ready Tool Co., Dept. MB, 554 Iranistan Ave., Bridgeport 5, Conn., has just released a new engineers master chart to help guide engineers in determining the center hole sizes. The chart also lists the maximum load on the centers in lbs., ranging from 100 to 300,000. Gives the minimum shaft dia. required and the subsequent center hole dia. that should be used.

**38. Stainless Steel.** A new booklet describing the uses of Allegheny metal stainless steel in the paper industry has been published by Allegheny Ludlum Steel Corp., Public Relations Dept.—BB, Pittsburgh 22, Pa. It includes descriptions and detailed information on the technology of the metal.

**39. Castings, Machine Shop Products.** A 32-page illustrated catalog describes the foundry and machine shop facilities avail-

able on a contract basis at Franklin Balmar Corp., Dept. B, Woodberry, Baltimore 11, Md. The catalog includes engineering service, foundry and pattern shop, machine shop, weld shop, sheet metal shop, forge shop, heat treating, and laboratory control facilities.

**40. Tool Steels.** Two bulletins, covering Extra, a water-hardening carbon tool steel, and Sterling V, a water-hardening carbon-vanadium tool steel, have been added to the catalog of tool steels manufactured by Firth Sterling Inc., Dept. B, 3113 Forbes St., Pittsburgh 30, Pa.

**41. Extreme Pressure Lubricant.** Bulletin 101, covering Molykote, Type BR-2, a multi-purpose extreme pressure lubricant, is now available from the Alpha Corp., Dept. B, 179 Hamilton Ave., Greenwich, Conn. This is a lithium-based product, containing molybdenum-disulfide powder.

**42. Cutting Office Costs.** "Cutting Office Costs in Small Plants" is No. 6 in Small Business Administration's management series. Techniques by which owners of small firms can save both time and money in their office management are outlined. Price 25 cents. Write Sup. of Documents, U. S. Government Printing Office, Washington 25, D. C. No. 7, in the series, entitled "Better Communications in Small Business," is also available; price 20 cents.

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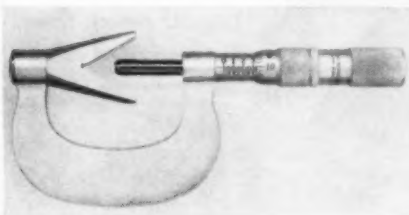
Booth No. 2158

**Personnel:** Jay O. Achenbach, Edward J. Girk, Stanley Pollnow, L. A. Pellon, C. Sacco, R. H. Okey, Frank Eberle, Arnold G. Landres, M. V. Olmert, A. S. Bennett.

**Products:** Unit type dust collectors for grinders, polishing lathes, etc.; exhaustors for welding fumes, etc.; oxy-gas, air-gas and acetylene torches; compressed air valves; gas valves.

**THE TORRINGTON COMPANY**  
Torrington, Conn.

Booth No. 364



Mike for 3-fluted tools  
Tubular Micrometer Co.

**TUBULAR MICROMETER CO.**  
St. James, Minn.

Booth No. 328

**Personnel:** R. L. Johnson, D. W. Freyberg, R. V. Anderson, L. T. Smith, N. T. Wolfe, F. J. Szama, P. S. White.

**New Products:** Triflumic, micrometer for 3-fluted tools such as end mills, taps, reamers, etc., reads directly in .001" and can be used while the tool is set up in the machine. True roundness of cylindrical work can also be determined with this micrometer.

**Other Products:** A complete line of calipers, micrometers, gages, and indicators will be shown.

**TUBULAR RIVET & STUD COMPANY**  
Wallaston, Mass.

Booth No. 2068

**TUMBLING SALES & SERVICE CO.**  
Greenwich, Conn.

Booth No. 2063

**TWENTIETH CENTURY MFG. CO.**  
Libertyville, Ill.

Booth No. 1013

**Personnel:** Waldo Garberding, Pres.

**New Products:** Plastic kits with complete sets of drills and chucking reamers; counterbores and drill sets. Decimal, chucking and stub reamers in decimal sizes; counterbores in over and under standard sizes; stop pins and guides; lighting equipment.

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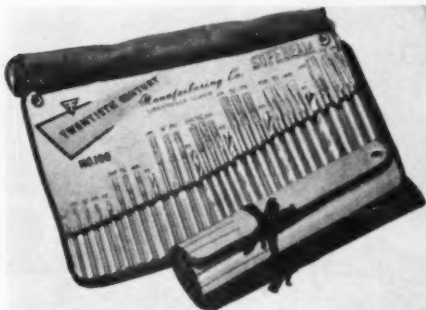
**TY-SA-MAN MACHINE CO.**  
Knoxville, Tenn.

**Booth No. 1953**

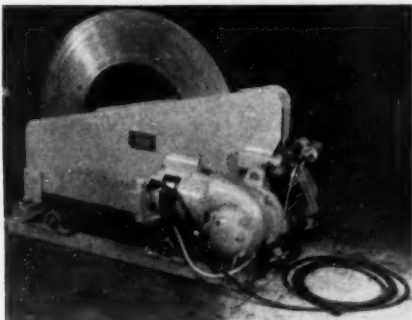
**Personnel:** Hubert E. Wayland, Chief Eng.; J. L. Hensley, Eng.  
**New Products:** 111D abrasive & friction cut-off saw, built for cuts to 288" long. Model shown has 48" cut.

**U. S. TOOL CO. INC.,**  
Ampere (East Orange) N.J.

**Booth No. 1254**



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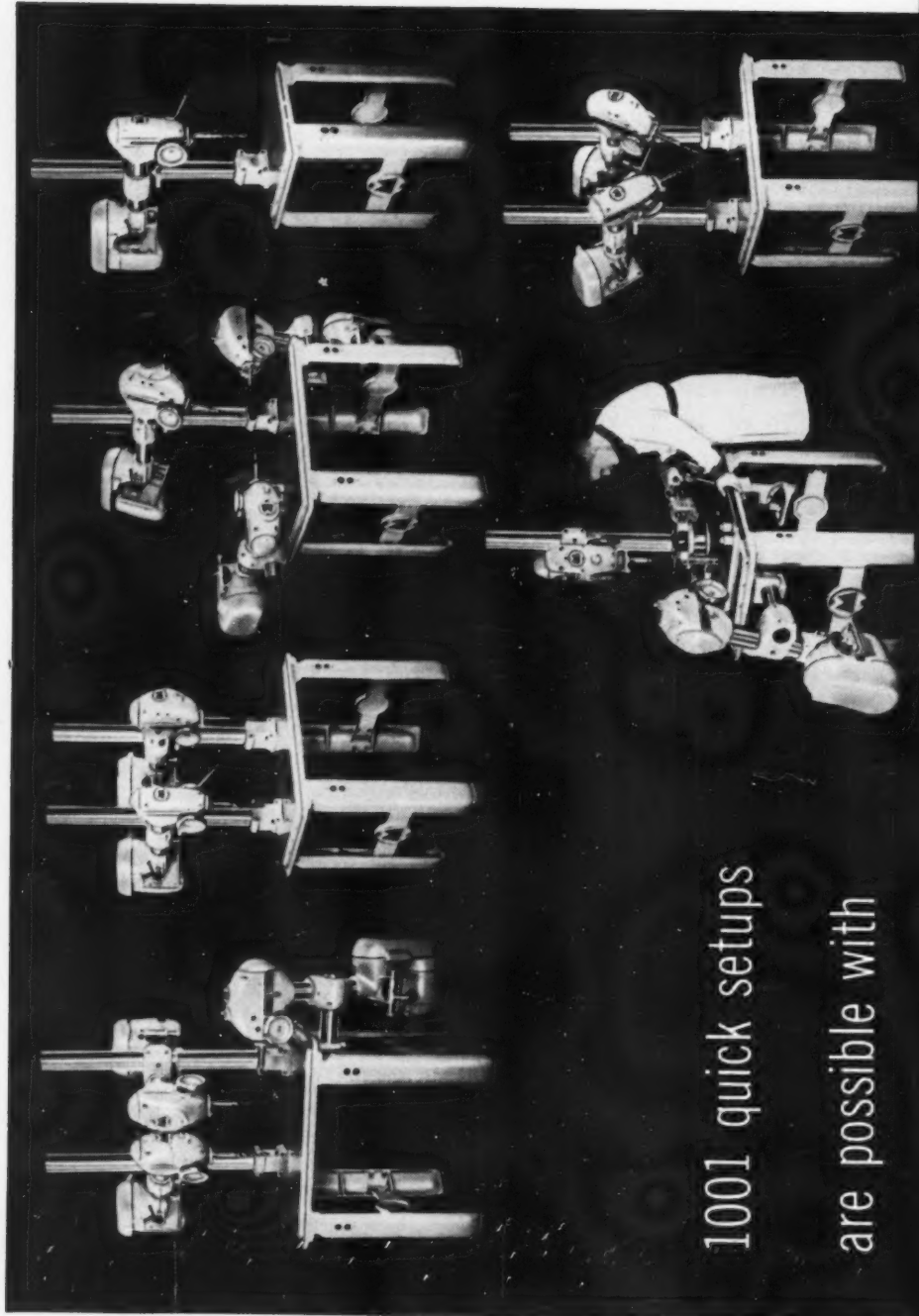
Chicago 24, Illinois



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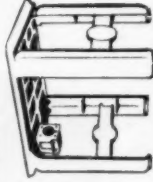
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**Other Products:** SF-1 U.S. slide feed; SS-07 U.S. plain stock straightener; PDS-12 U.S. power driven straightener; ACC-2-12 U.S. automatic coil cradle; RS-67 U.S. power driven straightener; SC-616 U.S. scrap chopper.

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New Britain, Conn.

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**UNITED DIAMOND TOOL CO.**  
Booth No. 2015

Lynbrook, L.I., N.Y.

**Products:** Diamond dressing tool.

**UNIVERSAL-CYCLOPS STEEL CORP.**  
Bridgeville, Pa.

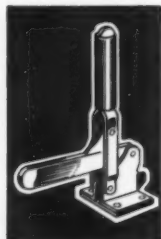
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Ferguson, Mo.

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**UNIVERTICAL MACHINE CO.**  
Detroit, Mich.

**Booth No. 745**

**Personnel:** Mr. and Mrs. Charles T. Walker.

**New Products:** Special design cut-off tool, for lathe.

**Other Products:** Univertical gilding metal Safe-T hammers (illustrated).

**UTICA DROP FORGE & TOOL CORP.**  
Utica, N. Y.

**Booth No. 809**

**Personnel:** T. R. Hughes, R. W. Dierks, Robert Bryan, Tom Bryan, Robert Dunn, Jr.

**New Products:** Chisels, punches, screwdrivers, No. 441 pliers, No. 450—9 lb. pliers, third hand nail clip. The latter (illustrated) fits over a hammer and enables the user to start nails without the aid of his other hand.

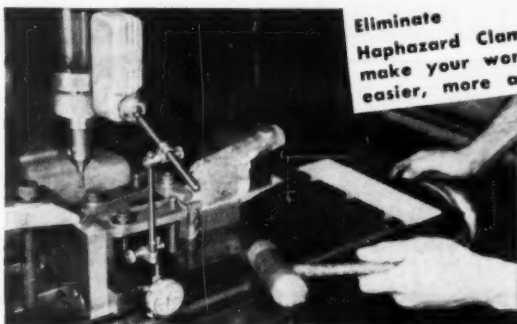
**Other Products:** No. 92 Utica adjustable locking wrench, pliers, adjustable wrenches.

**THE V & O PRESS CO.**  
(Div. Emhart Mfg. Co.)  
Hudson, N.Y.

**Booth No. 1056**

**Personnel:** W. W. Schug, Neil Van Deusen; Walter Lechowski.

**Products:** No. 2, high speed press, No.



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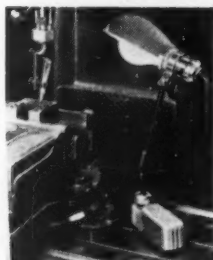
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**Booth No. 2116**

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**Booth No. 105**

**Personnel:** Frank D. Clark (In charge);

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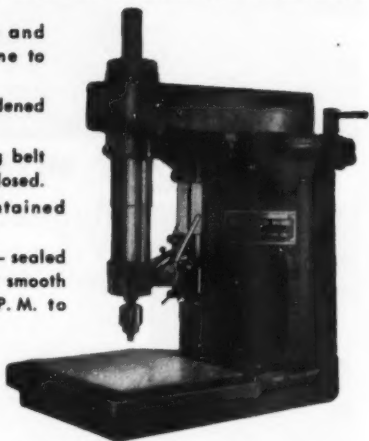
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**Booth No. 403**

**Personnel:** Burt Naden; H. H. Robbins;

R. C. Hitz; Ed. St. John; H. Hauck; R. Yore.

**Products:** Elimination of chipbreaker grinding and cutting of carbide waste shown in new V-R toolholder system; toolholder has built-in carbide chipbreaker; two new carbide inserts are half-length  $\frac{3}{4}$ " long inserts and new "throw-away" length. The latter are designed to use all cutting edges without grinding. A slide film gives more complete information on the system.

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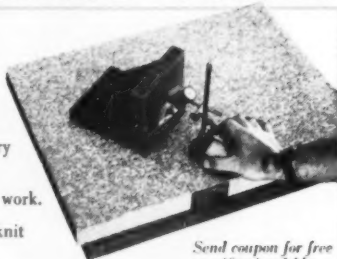
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Shelton, Conn.

Booth No. 542

**Personnel:** Ole C. Severson, Germain Severson, Aloysius P. McLeod, Charles V. Gluck, Jack Drew, George E. Boulain, E. Y. Moore, Jack Mitenbuler, Richard G. Chapman, William C. Chapman, Wilfrid Pulver, Elmer Hafenbrak, Glen Kraus.

**New Products:** Inserted high speed steel blade end mills, shell end mills, and face mills; heavy duty inserted carbide turning tools, with mechanical chip control.

**Other Products:** Mechanical lock inserted cutting tools, carbide single point tools, carbide and high speed steel milling cutters.

**VINCO CORPORATION**

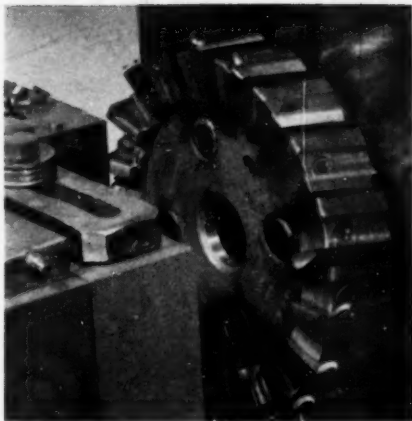
Detroit, Mich.

Booth No. 121

**VLIER ENGINEERING, INC.**

Los Angeles, Calif.

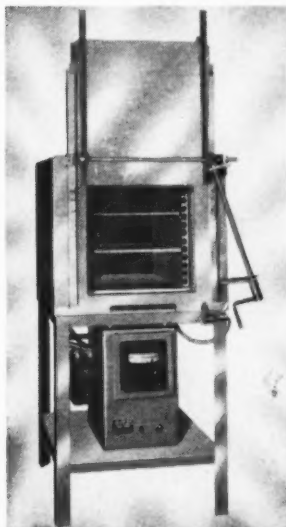
Booth No. 129



**Blade face mill**

The Viking Tool Co.

**Personnel:** Blaine H. Vlier, F. Baker Wallace, L. R. Helsel, Edgar J. Geist, Wood M. Geist, Boyd M. Baker, J. C. Mason, Ernst P. Eichman, Howell G. Macduff, Richard H. Macduff, Donald H. Macduff, O. A. Muenz, Robert Muenz, H. E. Sweet, H. S. Wilcox, V. L. Yukes,



## BLUE M AUTOMATIC Recirculating Air Draw ELECTRIC FURNACE

**check these extra value features**

**Wide range...**300° to 1350° F...covers work usually needing several units. New electronic automatic controls, plus wattage selector switch and alloy interior combine to give you maximum efficiency.

**Safer...**opening the door automatically shuts off air flow and door locks itself wherever stopped. Blue M's stepped-up air flow rate stops air anemia at high temperatures.

Working Chamber 12" W x 14" D x 12" H...\$924.00  
Working Chamber 15" W x 24" D x 18" H...1395.00

Blue M Electric Co., 306 W. 69th Street, Chicago, Illinois



Lee Zeoli, R. Geibold, Wm. R. Saville, Jim S. McAfee, W. C. Scott, Paul B. Slater, Cliff E. Commoford, R. A. Simon, C. A. Crane, Ted Harding, Chas. Price, Robert V. Bryant, Robert D. Bertram, Mr. and Mrs. F. H. Fowler, T. E. Ward-roppe, Lloyd R. Clowes.

**New Products:** Screw-Ball clamps, fixture key to fit all slots, soft tip spring plungers, HexNose spring plungers.

**Other Products:** Torque thumb screws, spring stops.

**THE WADE TOOL COMPANY**  
Waltham, Mass.

Booth No. 616

**WAHLSTROM, DIVISION OF  
AMERICAN MACHINE & FOUNDRY  
COMPANY**

New York, N.Y.

Booth Nos. 834 & 838

**WALDES KOHINOOR, INC.**  
Long Island City, N.Y.

Booth No. 424

**WALES-STRIPPIT CORP.**  
North Tonawanda, N. Y.

Booth No. 1830

**Personnel:** J. C. Kosky, C. A. Ralph, E. W. Cassidy, J. M. Massey, T. E. Wilke, G. Kaiser, A. D. Marx, W. Armi-



## See These Machines—

### CAMPBELL ABRASIVE CUTTERS

For fast, clean, accurate  
cutting of hard, soft,  
round, hex, square, or  
shaped stock



... at the

### ASTE Industrial Exposition

CONVENTION CENTER • PHILADELPHIA  
APRIL 26 TO 30 • BOOTH 1802

See Campbell Model 476 Automatic Abrasive Cutter in action

### CAMPBELL NIBBLERS


Cut odd shapes  
from ferrous  
or non-ferrous shapes





CAMPBELL MACHINE DIVISION  
AMERICAN CHAIN & CABLE

937 Connecticut Ave., Bridgeport 2, Conn.



tage, C. Wilson, D. Woelffel, J. F. Ferdinand.

**New Products:** Universal bed rail with adapters for punching and notching units; new compatible gaging system for both 1½" and 3½" holders used with Wales sheet metal fabricator.

**Other Products:** Wales sheet metal fabricator; twin column press; complete line of hole punching and notching equipment; Hydra Springs.

**WALKER-TURNER DIV., KEARNEY & TRECKER CORP.**  
Plainfield, N.J.

Booth No. 1512

**WARD LEONARD ELECTRIC CO.**  
**INDUSTRIAL CHROME DIVISION**  
Mount Vernon, N.Y.

Booth No. 137

**WARNER & SWASEY**  
(Research Corp.)  
New York, N. Y.

Booth No. 135

**THE WEATHERHEAD CO.**  
Cleveland, Ohio

Booth No. 1339

**WEBBER GAGE CO.**  
Cleveland, Ohio

Booth No. 324

**Personnel:** George D. Webber, George B. Webber, Hugh Collins, Ernest A. Isberg.

**New Products:** A new gage block, Cro-



Pratt Grinding Gauges caliper external cylindrical jobs while work is in motion or at rest. Adapted to straight or tapered work. Tolerances of .0001" plus or minus easily maintained. Visible check on out of roundness, rough grinding and chatter. Cannot grind work undersize unknowingly. Easily installed on any grinder. Pratt Grinding Gauges increase production, eliminate scrap and assure accuracy. A modern precision tool, ruggedly built.

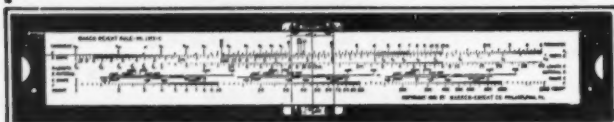
**American**  
**DIAMOND TOOL & GAUGE CO.**  
7525 FENKELL AVE. • DETROIT 38, MICH.

Send for Bulletin



## WAKCO WEIGHT SLIDE RULE Model 1373-D

This NEW Model includes decimal equivalent markings for U.S. Standard Gauge plate sizes 8 to 22



in addition to basic weight rule scales. Can now be used as both weight and general slide rule. Anyone figuring sizes, shapes and weights of steel, brass, cast iron, lead, copper, aluminum or magnesium should use this rule. For circular write for MT 46. Pr. \$17.50

**10 DAY TRIAL**  
No obligation to purchase

**WARREN-KNIGHT CO.** 136 North 12th St.  
Philadelphia 7, Pa.

blox, made from a material (Chrome-Carbide) with a coefficient of expansion similar to steel, is said to have amazing non-corrosive, anti-tarnishing properties, and hardness properties. Available in all standard rectangular size sets or as individual blocks for replacement of worn or damaged blocks.



Chrome-carbide gage blocks  
Webber Gage Co.

**WEBBER MANUFACTURING CO., INC.**  
Indianapolis, Ind.

Booth No. 2067

**WEBER ENGINEERED PRODUCTS, INC.**  
(Subcontract Div.)  
Cincinnati, Ohio

Booth No. 518

**WELLS MANUFACTURING CORP.**  
Three Rivers, Mich.

Booth No. 1447

**WESSON CO.**  
Detroit, Mich.

Booth No. 1255

**Personnel:** Jim Smith, William Bader, Gerald Transue, Sal Qanniello, Hank Konopka, Bob Wagner, George Murphy, W. Berkoben, Sy Dworecki, Jerry Bogner, G. Mulligan, Lester Berger, G. Ryan, Bill Terry, Gordon Carlton, H. Arendt, J. Zura and Sam Terracin.

**New Products:** A new dual-action blade lock for insert type milling cutters, boring heads, etc. In conjunction with the new "Dual-Wedge" lock, Wesson will introduce a new staggered tooth and half side milling cutters.

**Other Products:** Also featured will be a mock crankshaft turning operation with Wesson special band type tooling mounted on moving mounts on a standard lathe, modified with reduction gears, etc.



**Specify**



**FEELER  
STOCK**

For precision fitting, checking clearances, inspection and production work. Available in 12" strips, 1/2" wide, in cellophane, packed 12 pieces of one thickness to a box; also in 25 foot coils. 14 standard thicknesses from .0015" to .015".



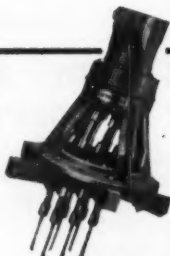
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BOOTH 440, PRECISION HALL

MIDLAND AVENUE • DETROIT 3, MICHIGAN

# Yes!... THRIFTMASTER makes ALL TYPES of DRILLHEADS

Universal Joint Drill-head. . . Full Ball or Bronze Bearing Construction. Standard and Heavy Duty. From 1/2" Minimum Centers up. Capacities to 1" in Steel.



Special Fixed Center Drill-head. . . Full Ball Bearing Construction.

Gear Driven Eccentric Type Adjustable Drill-head. . . Enclosed, Full Ball Bearing Construction.



- We Stock or Can Build the Right Drillhead for Your Job.
- Write for Complete THRIFTMASTER Catalog or phone for a rush, on-the-spot quote.

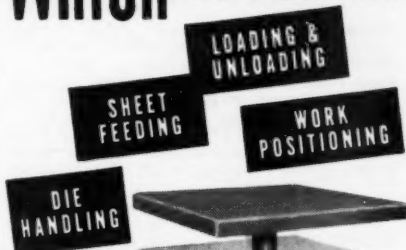


Subsidiary of Thomson Industries, Inc.

1030 N. PLUM ST.  
LANCASTER, PA.

Also Makers of  
DORMAN AUTOMATIC REVERSE TAPPERS

# WHICH DO YOU DO?



RAYMOND

PORTABLE

ELEVATING  
TABLE

# FITS ALL FOUR!

No table has so many practical uses as this RAYMOND Portable Hydraulic Elevating Table! Use it for positioning or handling throughout the plant . . . see how it lightens your work load. RAYMOND Hydraulic Elevating Table has sturdy 30" square top which can be rotated when desired.

Convenient foot pump simplifies raising and lowering, leaves operator's hands free. Smooth-rolling casters make table highly portable. Floor lock holds it securely in place. Standard Model elevates from 28" to 44"; Telescopic Model from 28" to 50". Both models have 2,000 lb. capacity.



**The RAYMOND CORPORATION**

3737 Madison St., Greene, N.Y.

Please send me Bulletin 253 on your Portable Elevating Table.

NAME \_\_\_\_\_ TITLE \_\_\_\_\_

COMPANY \_\_\_\_\_

STREET \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_

**WESTPLEX CORPORATION**  
Rochester, N.Y.

**Booth No. 2012**

**WEST POINT MFG. CO.**  
Detroit, Mich.

**Booth No. 1746**

**Personnel:** Arthur Lord; John Burke;  
George Pehrson; Raymond Seybert;  
Robert Kelly.

**New Products:** Leaf jigs; toggle clamps;  
swivel screws; swivel shoes.

**Other Products:** Clamp assemblies,  
I-bolts, jig rest buttons, rest buttons,  
cams, clamp straps, fixture keys,  
acorn nuts, coupling nuts, flange nuts,

spherical flange nuts, T-slot nuts, round  
& flatted locating pins, adjusting head  
screws, knob shoe assemblies, quarter  
turn screws, shoulder screws, high ten-  
sile studs, "C" washers, swing "C" wash-  
ers, flat washers, spherical washers,  
bar knobs, hand knobs, speed handles,  
hand wheels, polished machine handles,  
ball knobs.

**THE WHIRL DEX CO.**  
Detroit, Mich.

**Booth No. 1911**

**THE WHITON MACHINE COMPANY**  
New London, Conn.

**Booth No. 508**

## **NEW** THE WELLS MODEL 800 HEAVY-DUTY CUT-OFF SAW



**... the first metal  
cut-off Saw designed**

**for use with High Speed Steel Band Saw Blades**

THE NEW WELLS MODEL 800, engineered to use blades 1" in width, is a heavy duty, metal cutting band saw designed to bring new accuracy and efficiency to your production cut-off operations.

Model 800 is also the first metal cutting band saw approved for use with high speed steel band saw blades. When used with this type of blade, a higher level of cutting efficiency has been attained in cutting stainless steel, die blocks and other tough metals.

See your Wells dealer for further information or write direct

See us at Booth 1447 A. S. T. E. Show



*Products by Wells are Practical*

### **METAL CUTTING BAND SAWS**

WELLS MANUFACTURING CORPORATION  
707 COOLIDGE AVE. THREE RIVERS, MICH.

## PRECISION DIES

by the men who make precision machines

## CUT COSTS

in toolrooms and production lines

Better products — Greater Profits — through **QUALITY DIES**  
**DRAWINGS INVITED FOR QUOTATION — WRITE TODAY**

**THE IDEAL TOOL and DIE CO.**, Schenectady, New York  
offers a precision die-making service as well as quality tools

### DUPLEX

**Punch and Die-Making  
Machines**

For . . .

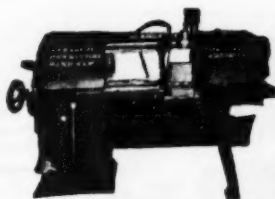
- Filing
- Sawing
- Scooping
- Lapping



Two-Table design for through filing above and blind filing below. Retractable file holder.

### HORIZONTEX

**Parallel Cut-Out  
and Cut-Off  
Metal Cutting  
Band Saw  
Machines**



Capacity 9" x 16"  
and 9" x 20"

**IDEAL TOOL and DIE CO.**

730 Congress St., Schenectady, N. Y.



Model TG-12

## COMPACT CENTERLESS GRINDER

By **ROYAL MASTER**

(24" x 48" floor space)

For **THRUFEEED,**  
and **PLUNGE,**  
and **INFEEED** } **GRINDING**

Designed to grind small diameter forms which might call for plunge or infeed grinding—as well as long rods of small diameter.

Grinds anything from plastics to tungsten carbide; tolerances as low as .0002 inch can be consistently held, and 6 to 8 micro finishes are easily obtained. Will handle practically any shape up to 1" diameter, and many shapes up to 1½" diameter. Occupies 24"x48" floor space, including coolant tank.

See is in Booth No. 111, A.S.T.E.  
Exposition, Philadelphia Pa., April 26-30

Write **TODAY** for new literature with complete details and prices on this and other models.

**ROYAL MASTER, INC.**

200 STATE HIGHWAY NO. 23

RIVERDALE, NEW JERSEY



*You Need an Extra Hand Now  
to Speed Up Production!*

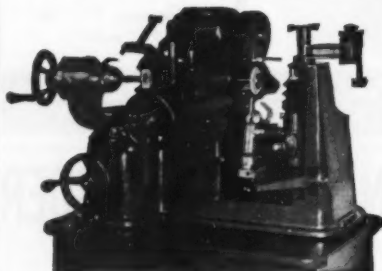
### HEIMANN TRANSFER SCREW SETS

Here is the faster, more precise way of transferring open and blind screw holes—make savings in "wage-dollars-per hour" of your expensive hands on every job. A die-and-tool maker's tool with many other applications for die makers and machinists. A set of 6 Hardened Screws nested in combination holder and wrench—no other tools needed. Get more work now—save money too!

IN 11 SIZES—No. 6 to 1"  
N.C. In all S.A.E. sizes.

**HEIMANN MFG., CO. • URBANA, OHIO**

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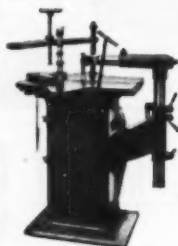


**MODEL 1100**

- Capacities No. 0 Machine Screw to 1½" Hand Taps.

**HENRY P. BOGGIS & CO.**

710 East 163rd Street  
Cleveland 10, Ohio



**S** TRAIGHT OR  
TAPER KEYWAYS  
**U** NIVERSAL  
CENTERING  
**N** O BUSHINGS OR  
BUSHING HOLDERS  
REQUIRED  
**R** UGGED STEEL  
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**Y** OUR PRODUCTION  
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Faster and more economical cutting of keyways with SUNRAY. Meets your most exacting requirements. Keyways cut ¼" to 1" by broach having several teeth cutting at once; also eliminates tendency of cutter to dig into the work. Many other advantages!

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**SUNRAY COMPANY**

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Wherever continuous hinges and metal corners are needed, you'll find the answer at Rex . . . a reliable source of supply with the finest facilities to meet your requirements. Hinges furnished in brass, aluminum, stainless and steel.

**ALSO METAL  
STAMPINGS OF  
ALL TYPES**

*Send Us Your  
PROBLEMS*

**REX METAL PARTS CO.**  
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CLEVELAND, 2, OHIO

**WICKMAN MFG. CO.**  
Detroit, Mich.

Booth No. 608

**WILSON MECHANICAL  
INSTRUMENT DIV.**  
(Am. Chain & Cable Co., Inc.)  
New York 17, N. Y.

Booth No. 1802

**Products:** The latest model hand-operated "Rockwell" and "Rockwell" Superficial Hardness Testers, as well as accessories for the "Rockwell" Testers. In addition, the MO Model Tukon Microhardness Tester, which applies loads down to one gram, will be shown. Feature in the hand-operated testers is

the introduction of an illuminated dial which provides illumination for the penetrator as well as the test surface of the material being tested. The new Y Model Motorized "Rockwell" Tester (illustrated herein) will also be shown in operation.

**WILTON TOOL MFG. CO.**  
Chicago, Ill.

Booth No. 804

**Personnel:** Hugh W. Vogl, Pres.; Alex J. Vogl, S.M.

**New Products:** Wiltomatic air-hydraulic bench vises and milling machine vises use the conventional vise screw and handle for pre-setting the jaw opening to the size of the workpiece. The power

**Now... From one outstanding source!**

**All Your  
Diamond  
Abrasive  
Requirements**

THE

**Star Dust  
LINE!**

**A COMPLETE RANGE OF  
LABORATORY GRADED DIAMOND  
ABRASIVES FOR EVERY PURPOSE**



**STAR DUST DIAMOND  
WHEELS AND HONES**

Superior diamond  
quality combined  
with new bonding  
formula.



**STAR DUST  
Laboratory graded  
Pure Diamond  
Powders**



**STAR DUST Laboratory  
graded diamond lapping  
compounds in 18 gram  
applicator gun—or in 5 gram  
ophthalmic tipped tube.**

You can put your confidence in the STAR DUST line as so many others do because STAR DUST quality is consistent quality—the result of our special process of laboratory crushing and grading to achieve uniform nodular shape. That means *all* particles work for you. Be "Laps Ahead." For easier grinding and mirror finishes specify STAR DUST products.

For complete information and catalog write  
Dept. A-11

**ACE ABRASIVE LABORATORIES**

**NEW ADDRESS: 35 ROSELLE STREET, MINEOLA, N. Y.**

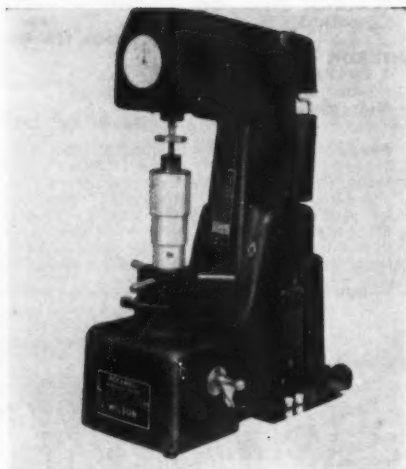


unit, which is attached to a conventional Wilton vise, has an adjustable power stroke from zero to  $\frac{3}{4}$ ". Maximum jaw opening varies from 3" to 9" depending on size of vise. The power stroke is activated by either a foot or hand control.

**Other products:** Wilton machinists' bench vises, Wilton PowRarm work positioners, Wilton C-clamps.



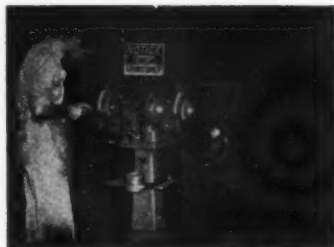
**Air hydraulic bench vise**  
Wilton Tool Mfg. Co.



**Y model motorized "Rockwell" tester**  
Wilson Mechanical Instrument Div.,  
Am. Chain & Cable Co., Inc.

# STOP DUST

with **DUSTKOP**



Low cost, immediate control of dust from one remote dust source, or from a whole shop!

**AGET-DETROIT CO.**

205 MAIN ST.

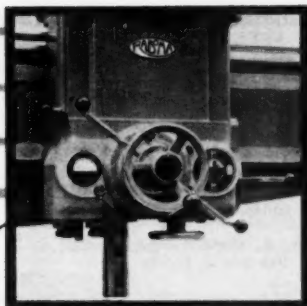
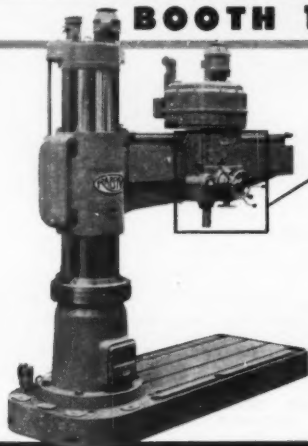
ANN ARBOR, MICH.

300 cfm to 10,000 cfm  
per unit (22 models)  
standard, pre-tested,  
available from stock.  
Ask for catalog 605-2.  
No obligation.

## **RABOMA RADIAL DRILLS**

**AT THE ASTE EXHIBITION**

**BOOTH 1201**



### **Simplified Controls Speed & Feed Preselectors**

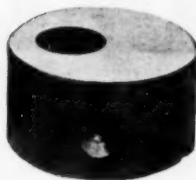
Many sizes from 3' arm—12" column  
to 10' arm—30" column now in stock

For further information write, wire, phone:

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## **"Special yesterday**



## **Standard today"**

Hardly a day passes without our adding a new size to our stock of **76 styles of punches** and **65 styles of dies**—which fit most makes of hand, foot, and power operated presses.

A wide selection of round, oval, flat, and square sizes are always on our shelves for immediate shipment.

Tools that had to be made to order yesterday at special tool prices are in stock today at standard tool prices.

Send for our catalog sheets which give complete listing of standard styles, sizes, and prices. See how you can **save time and money** with Lewthwaite tools.

**T. H. LEWTHWAITE MACHINE CO., INC.** 312 E. 47th St., N.Y.C.

**WINTER, WOLFF & CO., INC.**  
**PERMASCO DIVISION**  
New York, N.Y.

**Booth No. 630**

**HENRY H. WISE CO.**  
Los Angeles, Calif.

**Booth No. 1520**

**Personnel:** Henry H. Wise.

**New Products:** Wise abrasive cut-off saw—right angle cutting with 15 hp motor; cut-off wheels.

**N. A. WOODWORTH CO.**  
Ferndale, Mich.

**Booth No. 221**

**New Product:** "Zero Spindle" inspection fixtures; simple design, construction for measuring concentricity and squareness; used with diaphragm chucks and arbor tolerances close as .000025.

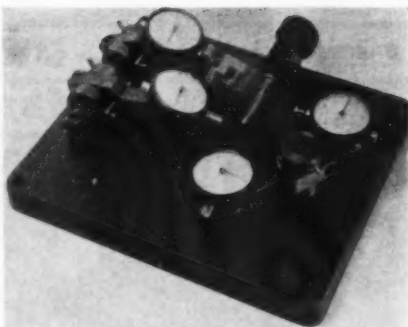
**Other Products:** Precision chucking tools, gaging aids.

**ZAGAR TOOL, INC.**  
Cleveland, Ohio

**Booth No. 1620**

**Personnel:** Frank Zagar, Gen. Mgr.; John P. Mrsnik, Sales Mgr.; Frank Zurga, Works Mgr.; Charles Janki, Chief Eng.; Fred Nevar, Elmer Domin, Warren Flansburg, Sales Engineers; Mrs. Rosalie Zagar, Receptionist.

**Products:** Collet fixtures (holding and



**Chucking, gaging tool**  
N. A. Woodworth Co.

indexing); collets and accessories; broaching machines; broaching tools; drill heads; self-clamping drill fixtures; multiple-spindle hydraulic drilling machine.

**CARL ZEISS—of JENA**  
**ERCONA CORPORATION (U.S. Repr.)**  
New York, N.Y.

**Booth No. 131**

# APEX INSERTED-BLADE METAL-CUTTING TOOLS

**APEX MILLING CUTTERS.** Made with inserted blades, all drop-forged of selected steels.

Adjustable for diameter or width.

Single or multiple operations with blades of High Speed, Super Cobalt, Stellite, Rexalloy, or Carbide Tipped. Standard sizes, including large diameters, carried in stock.

**APEX TOOLS FOR LIGHT OR HEAVY PLANER WORK**

Adjustable serrated for maximum wear. Over 50 standard shapes of

tool bits interchange in one holder. Angle tools for Plate Planers carried in stock. Special shapes to order.

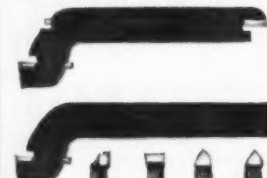
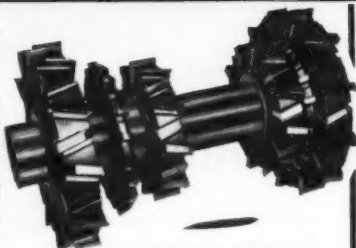
Tools drop-forged of High Speed Steel, Super Cobalt Steel, or tipped tools of Stellite, Rexalloy, or any grade or make of Carbide. Furnished ground ready for use.

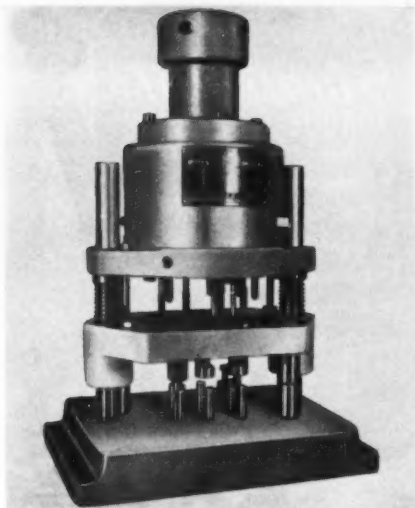
Service representatives available.

Send for catalog.

**APEX TOOL & CUTTER CO., INC.**

• **SHELTON 14, CONNECTICUT**





**Self-clamping drill jig**  
Zagar Tool Inc.

**IMPORTANT NOTICE**

The Genuine **MAUSER**  
**VERNIER CALIPER**  
IS NOW MADE OF  
**STAINLESS STEEL**  
THROUGHOUT

**\$14.75**  
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AND THE FOLLOWING  
IMPROVEMENTS HAVE BEEN ADDED

- SPECIALLY LONG VERNIER to read thousandths
- HARDENED PHOSPHOR-BRONZE adjustable gibs retain accuracy
- 2 GRADUATIONS - 1/1000" - 1/128" - 1/16 mm in back

Request illustrated folder showing complete line of  
MAUSER Toolmakers Calipers, Height Gages, Savel Pro-  
tractors and Tool Stands.

**GEO. SCHERR CO., Inc.** 200-MT Lafayette St., N.Y. 12

**T-NUTS**  
**STUD SETS**  
**STRAP**  
**CLAMPS**  
**SURE GRIP**  
**STEP BLOCKS**

**Tietzmann Tool Corp.** ENGLEWOOD, OHIO

## Nicholson Expanding Mandrels

# SAVE TIME LOST

## Providing Solid Arbors

Records in many shops show Nicholson expanding mandrels actually get operations completed in less time than was formerly consumed in providing solid arbors. In cases this results in a tremendous cut in "down" time. Set of 14 Nicholson mandrels replaces 209 solid arbors. For all bores 1/2" to 7"; sold singly or in sets.



For details send for BULLETIN 653  
117 Oregon St., Wilkes-Barre, Pa.

**W. H. NICHOLSON & CO.**  
**TRAPS · VALVES · FLOATS**

## NEW Hi Speed

### CUT-OFF and GRINDING WHEELS



Unbreakable Elastic Longer Lasting even at highest speeds. Strong construction enables use on machines running at surface speed of up to 20,000 ft. per minute. Can be used universally for cutting and grinding of all factory materials including hard and soft metals. Standard sizes and grids. Cut-off wheels up to 20" dia. grinding wheels 7" and 9" dia. with depressed center.

**Cut-off Machines Running at Surface Speeds of 16,000 to 20,000 ft. per minute.**

Water and Oilproof Abrasive Cloth for Super Polish with Oil for Cylinders and Crankshafts. Also, Water-proof Abrasive Paper — Highest Flexibility, Sharpness and Durability.

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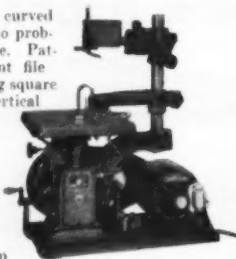
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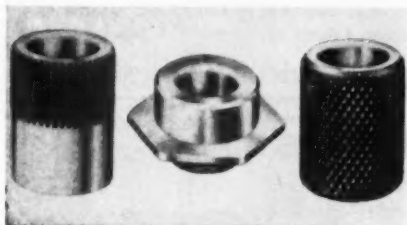
**AMERICAN DRILL BUSHING CO.**

Los Angeles 58, Calif.

**Booth No. 1234**

**New Products:** Serragrip, Hexagrip, Deltagrip drill bushings.

**Other Products:** Full line of drill jig bushings.



Drill bushings

American Drill Bushing Co.

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**BOKUM TOOL CO.**

Detroit, Mich.

**Booth No. 242**

**New Products:** The Rapidor tool consists of two major parts—a cutter (replaceable when worn) and a holder made of heat-treated alloy steel. (The latter representing an investment only in the initial purchase. The cutting head, in super high speed steel or carbide-tipped, is made in four types: (1) for roughing; (2) for semi-finishing; (3) for finishing; (4) for forming. All interchangeable.

**Other Products:** Series 500 short-necked boring tools.

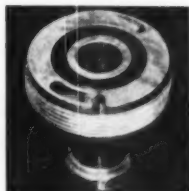
**THE CHALLENGE MACHINERY CO.**

Grand Haven, Mich.

**Booth No. 2119**

**Personnel:** E. P. Babcock; Frank Harris; L. J. Perrette; Ed. Voloveh; Ed De Haan.

**New Products:** Universal box angles of special analysis semi-steel, heat treated, precision ground, have clamping facilities of an angle iron, stability, balance



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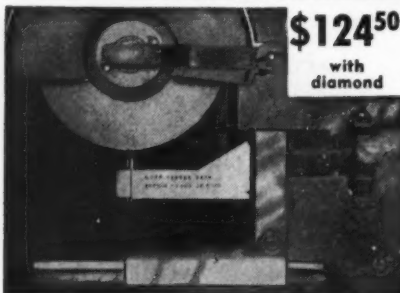
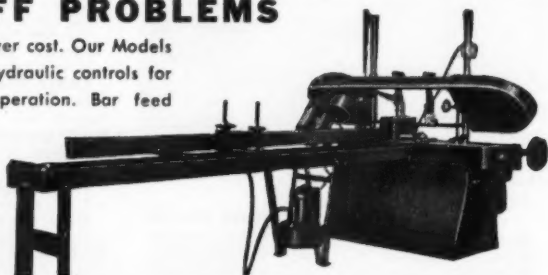
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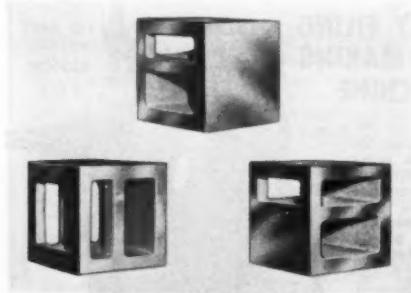
No. 901 C  
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with LOCK NUT and RATCHET and 10th vernier as shown **\$13<sup>25</sup>**

This tool with TUNGSTEN CARBIDE tipped anvils **\$15.75**

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and accuracy of a box parallel and perpendicular flat surface of an angle plate. **Other Products:** Straight edges, parallel straight edges, surface plates, surface plate stands, universal right angle irons, angle plates, universal box angle, box parallels, V blocks.



#### Universal Box Angles

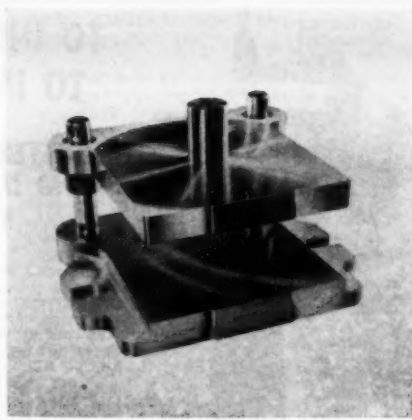
Challenge Machinery Co.

#### DANLEY MACHINE SPECIALTIES, INC.

Chicago, Ill.

Booth No. 1601

**Products:** Demonstrations in die set production advances; services in special rotary milling tooling; surface grinding; broaching.



#### Die sets

Danley Machine Specialties, Inc.

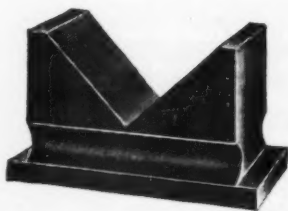
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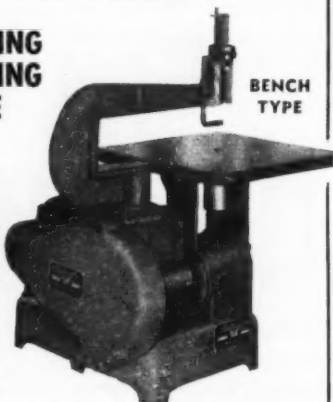
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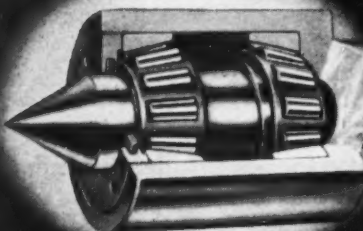
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speeds said to be higher than ever before attempted. The machine is being widely used in the structural steel and cold drawn steel plants.

**Other Products:** Indexable blade milling cutters, tool dullness indicating devices and special carbide grinders.

**THE DYNATOMIC CORP.**  
Chicago, Ill.

**Booth No. 2021**

**Products:** Dynatomic grinder for grinding cemented carbide tools without diamond wheels; claims longer tool life, superfinish, simultaneous rough and finish grinding.

**MERZ ENGINEERING, INC.**  
Indianapolis, Ind.

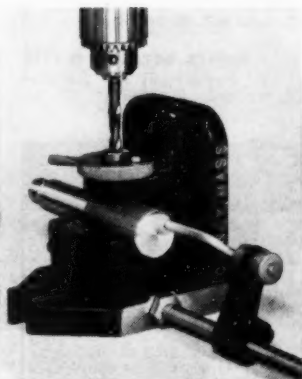
**Booth No. 306**

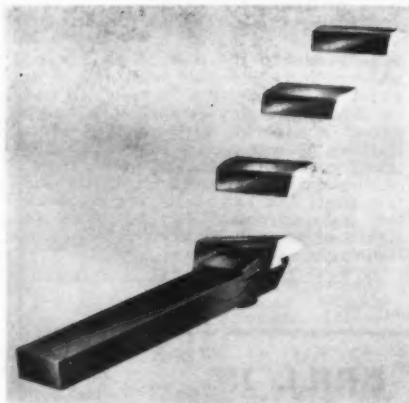
**New Products:** Recorder gage designed to work in conjunction with any of the standard pickup heads, which are used on Merz electronic comparators, height gages, or special electronic checking fixtures. Standard units may be plugged into the front of the recorder cabinet; records individual readings on production parts checked under the comparator and automatically advances an eighth of an inch between each inspection cycle.

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## **NEW ADJUSTABLE DRILL JIG** **eliminates layout; cuts drilling time**

Used for drilling holes through round stock and hex stock from  $\frac{1}{4}$ " to 2" and cap screws from  $\frac{1}{4}$ " to  $1\frac{1}{4}$ ", the new Mathewson Adjustable Drill Jig eliminates layout and can cut drilling time on small lots to a fraction. And it eliminates the costs of special jigs for larger quantities. Holes for cotter pins, set screws, drive pins for bayonet joints, oil holes in tubular sections, and wiring holes in cap screws, are all typical of the operation that can be done more economically with this jig. Hole diameters range from .052" to .531", using your A.S.A. standard slip bushings. The hardened V-block has two 60-degree V's for centering round or hexagonal stock, one for  $\frac{1}{4}$ " to  $21/32$ " diameter, one for  $21/32$ " to 2" diameter. Adjustable stop for locating work longitudinally for drilling any distance from end, may be used on either side. Adjustable bushing carriers hold slip bushings and clamp work securely. Jig highly successful in permitting use of inexperienced drill operators. For circular write to: **Mathewson Machine Works, 42 Hancock St., Quincy, Mass.**





**Rapidor tools**  
Bokum Tool Co.

#### **SOUTH BEND LATHE WORKS**

South Bend, Ind.

Booths Nos. 1709 & 1713

**Personnel:** J. F. Probst; R. V. Rittenhouse; G. A. Sporre; R. Keller; H. L. Swartz.

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No. 1 cuts up to No. 11 gauge strip or sheet.  
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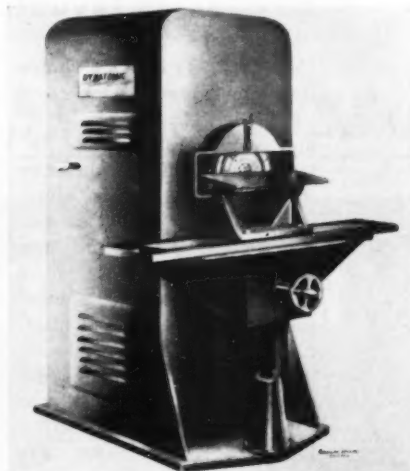
**BREMIL MFG. CO.**  
1124 West 29th St., Erie, Pa.

**New Products:** Improved 10"-1" collet lathe series featuring new wide range gearbox (70 threads and feeds—4-480 per inch); also the 10"-1" collet toolroom bench model will be exhibited.

**Other Products:** 7" stroke precision bench shaper, 8"-10" pedestal tool grinder, universal table, 16" x 6" bed toolroom lathe, light ten Model "A" underneath motor drive lathe, 9" Model "A" horizontal motor drive lathe, 9" Model "A" underneath motor driven lathe, floor model precision drill press, indexing table, rotary table, indexing centers, precision level.

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The Dynatomic Corp.



## REDUCE DRILL BREAKAGE

... with full length bearing precision bushings, O.D. ground true to I.D. • We specialize in hole sizes #80 to 3/4", in any body size. Other sizes to your specifications. Production small hole drilling, our specialty.

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Detroit, Mich.

**Booth No. 1455**

**Personnel:** F. H. Willey, Jr., Pres.; R. H. Schulz, S. M.; R. M. Harrington, Maint. Engr.; J. V. Rutten, V. P.; S. D. Currier, Plant Supt.; Victor Krajewski, Serv. Engr.; Ben Janz, Serv. Engr.; Clem Renaud, Serv. Engr.; J. A. Kott, Chief Engr.; Frank Balog, Metallurgist; M. G. Rumora, Serv. Engr.; Don McPherson, Serv. Engr.; John Kenealy, Serv. Engr.; Henry Skuzenski, Metallurgist.

**Products:** Demonstration of diamond hand lapping machine showing mirror finishing of tungsten carbide cutting



tools. Carbide products shown include: tipped flat type broach, tipped single broaching tools, wiping blade broaching tools, combination broach and burnishing tool, broaching rings; carbide drills and drill bushings—headless, head type, fixed and slip renewable.

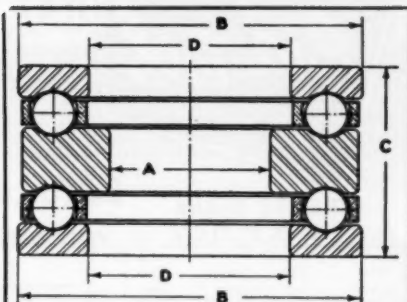
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11/64	1.65	23/64	2.75
3/16	1.65	3/8	2.75
13/64	1.80	25/64	3.05
7/32	1.80	13/32	3.05
15/64	1.95	27/64	3.30
1/4	1.95	7/16	3.30
17/64	2.05	29/64	3.60
9/32	2.05	15/32	3.60
19/64	2.25	31/64	3.60
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No. 4—1 Each 1/8 to 1/2 Extra Long Drills, 12" Overall 9" Flutes Consists of 25 Drills x 64ths \$55.00

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13/64	7.15	41/64	9.00
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35/64	7.70	43/64	9.10
9/16	7.70	11/16	9.10
37/64	8.25	45/64	9.35
19/32	8.25	23/32	9.35
39/64	8.80	47/64	9.50
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13/16	12.00	29/32	13.75
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We stock special sizes in High Speed Milling Cutters, Slitting Saws, End Mills and Reamers.

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2	1.00	6 1/8	3 3/4	32	.70	5 1/8	3
3	1.00	6	3 3/8	33	.70	5 1/8	3
4	1.00	6	3 3/8	34	.70	5 1/8	3
5	1.00	6	3 3/8	35	.70	5 1/8	3
6	1.00	6	3 3/8	36	.70	4 3/8	2 1/2
7	1.00	6	3 3/8	37	.70	4 3/8	2 1/2
8	1.00	6	3 3/8	38	.70	4 3/8	2 1/2
9	1.00	6	3 3/8	39	.70	4 3/8	2 1/2
10	1.00	6	3 3/8	40	.70	4 3/8	2 1/2
11	.90	6	3 3/8	41	.60	4 3/8	2 1/2
12	.90	6	3 3/8	42	.60	4 1/4	2 1/4
13	.90	5 3/4	3 1/2	43	.60	4 1/4	2 1/4
14	.90	5 3/4	3 1/2	44	.60	4 1/4	2 1/4
15	.90	5 3/4	3 1/2	45	.60	4 1/4	2 1/4
16	.90	5 3/4	3 1/2	46	.60	4 1/4	2 1/4
17	.90	5 3/4	3 1/2	47	.60	4 1/4	2 1/4
18	.90	5 3/4	3 1/2	48	.60	3 3/4	2
19	.90	5 3/4	3 1/2	49	.60	3 3/4	2
20	.90	5 3/4	3 1/2	50	.60	3 3/4	2
21	.80	5 3/4	3 1/2	51	.50	3 3/4	2
22	.80	5 3/4	3 1/2	52	.50	3 3/4	2
23	.80	5 3/4	3 1/4	53	.50	3	1 3/4
24	.80	5 3/4	3 1/4	54	.50	3	1 3/4
25	.80	5 3/4	3 1/4	55	.50	3	1 3/4
26	.80	5 3/4	3 1/4	56	.50	2 1/4	1 1/8
27	.80	5 3/4	3 1/4	57	.50	2 1/4	1 1/8
28	.80	5 3/4	3 1/4	58	.50	2 1/4	1 1/8
29	.80	5 3/4	3 1/4	59	.50	2 1/4	1 1/8
30	.80	5 3/4	3 1/4	60	.50	2 1/4	1 1/8

No. 1—1 Each No. 1 to 60 Long Drills. Consists of 60 Drills \$40.00

### TAPER LENGTH LETTER SIZES

Size	Price Each	Length Overall Inches	Approx. Length of Twist Inches	Size	Price Each	Length Overall Inches	Approx. Length of Twist Inches
A	\$1.64	6 1/8	3 3/4	N	1.78	6 3/8	4 1/8
B	1.64	6 1/8	4	O	1.86	6 1/2	4 1/8
C	1.64	6 1/8	4	P	1.86	6 1/2	4 1/8
D	1.64	6 1/8	4	Q	1.86	6 1/2	4 1/8
E	1.64	6 1/8	4	R	1.86	6 1/2	4 1/8
F	1.71	6 1/4	4	S	2.00	6 3/4	4 1/4
G	1.71	6 1/4	4	T	2.00	6 3/4	4 1/4
H	1.71	6 1/4	4	U	2.00	6 3/4	4 1/4
I	1.71	6 1/4	4	V	2.14	7	4 3/8
J	1.71	6 1/4	4	W	2.14	7	4 3/8
K	1.71	6 1/4	4	X	2.14	7	4 3/8
L	1.78	6 3/8	4 1/8	Y	2.14	7	4 3/8
M	1.78	6 3/8	4 1/8	Z	2.29	7 1/4	4 3/8

No. 2—1 Each Letter A to Z Long Drills. Consists of 26 Drills \$40.00



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Company

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**HIGH SPEED SPECIAL RIGHT HAND TAPS**

SIZE	THREAD	SIZE	THREAD	SIZE	THREAD
4	32-48-60-64	3/8	12-16-18-20-27-28-32-36-40-48	1-3/4	8-10-12-14-16-18-20-24
5	30-32-36-48-80	7/16	12-16-18-22-24-27-28-30-32-36-40	1-13/16	8-10-12-14-16-18-20
6	36-40-48-56-60			1-7/8	8-10-12-14-16-18-20-24
7	32-40	1/2	12-14-16-18-22-24-26-27-28-30-32-40	1-15/16	8-10-12-14-16-18-20-24-28
8	24-30-36-38-40-44-48	9/16	16-20-24-27-28-30-32-40-48	2	4-1/2-8-10-12-16-18-20
9	24-28-32-40	5/8	12-14-16-20-24-27-28-32-35-40	2-1/16	12-14
10	28-30-36-40-48-64	11/16	11-16-18-20-24-27-28-30-32	2-1/8	12-16-20
12	20-28-32-36	3/4	9-11-12-14-16-20-24-26-27-28-32	2-3/16	12-16
14	20-24-28	13/16	10-14-18-20-32	2-1/4	4-1/2-8-12-14-16-18
1/16	60-64	7/8	10-12-16-18-20-24-27-28-32	2-5/16	12-18
3/32	48	15/16	8-9-10-12 1-16-18-20-24-32	2-3/8	12-16-18
7/64	48-56	1	10-12-16-18-20-24-27-32-40	2-1/2	8-10-12
1/8	32-40	1-1/16	12-14-16-18-20-24	2-9/16	18
5/32	32-36-40	1-1/8	8-10-14-16-18-20-24-32	2-5/8	12-16-20
9/64	36-40	1-3/16	8-10-12-14-16-18-20-24	2-3/4	16
11/64	36	1-1/4	8-10-14-16-18-20-24-32	2-7/8	8-12-16
3/16	20-24-32	1-5/16	12-14-16-18-20-24-32	3	8-16
13/64	32	1-3/8	8-10-14-16-18-20-24	3-1/4	8-12-16
7/32	24-28-32	1-7/16	8-10-12-16-18-20-24	3-1/2	8-12-16
1/4	18-24-26-27-30-32-36-40	1-1/2	8-10-14-16-18-20-24-28	3-7/8	6
5/16	16-20-22-27-28-32-40	1-9/16	18-20-24	4	8-12
		1-5/8	5-8-10-12-13-16-18-20-24		
		1-11/16	10-12-14-16-18-20-24		



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3	56	9/16	12-18-20-24	1-9/16	8-10-12-16-18-20
4	32-36-40-48	5/8	11-12-18-20-24	1-5/8	8-10-12-14-16-18-20
5	40-44	11/16	11-16-24	1-11/16	8-10-12-14-16-18-20
6	32-36-40	3/4	10-16-18-20	1-3/4	8-10-12-14-16-18-20
8	32-36-40	13/16	16	1-7/8	8-10-12-14-16-18-20
10	24-30-32-40	7/8	9-12-14-18-20	1-15/16	8-10-12-14-16-18-20
12	24-28-32	1	8-12-14-16-18-20		
1/4	20-28-32	1-1/8	7-12		
5/16	18-20-24-28-32	1-1/4	7-12-16-18		

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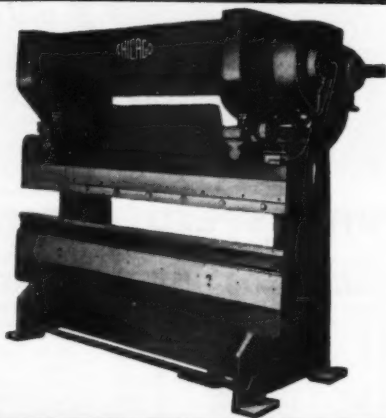


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## Technical BOOKS

### Instructional Units in Machine Shop, Part 1

By Oscar A. Embretson, instructor in drafting, Vocational and Adult School, Racine, Wis., and Henry J. Seymour, instructor in machine shop; 63 pages, 8½"x11"; published by The Bruce Publishing Co., Milwaukee, Wis.; price \$0.96.

The objects of this book are: (1) to familiarize the beginner with basic principles and practices of machine shop; (2) to provide a suggested procedure for each project, accompanied by introduction, references, and questions; (3) to guide the trainee toward a decision for the machinists' trade; (4) to provide effective course material for instructors in service and persons who are in training to become instructors in vocational and secondary schools and in other teaching institutions having courses in machine shop.

The course covers training on the bench, drill press, engine lathe, shaper, mill, surface grinder, and forge. The cylindrical grinding can be done either on the lathe or on the cylindrical grinder. The authors have tried to make the instructional units as understandable and as practical as possible for the student.

### Stress Concentration Design Factors

By R. E. Peterson, manager of mechanics department, Westinghouse Research Laboratories; 155 pages, 11"x8½"; published by John Wiley & Sons, 440 Fourth Ave., New York 16, N.Y.; price \$8.50.

Failures are seldom due to faulty material; experience shows that corrective measures usually involve a design modification. It is the purpose of this book to place in the designer's hands information that will enable him to improve his design calculations to the end that failure will be less prevalent and better balanced designs will be achieved. The book should be regarded primarily as a working tool; it is not intended to be a textbook in the usual sense, and therefore only enough background and references are given to enable the reader to explore the subject further if he so desires. Features have



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been incorporated to increase its use, such as the tab index, the edge finder, the helical binding and the large, full-grid charts.

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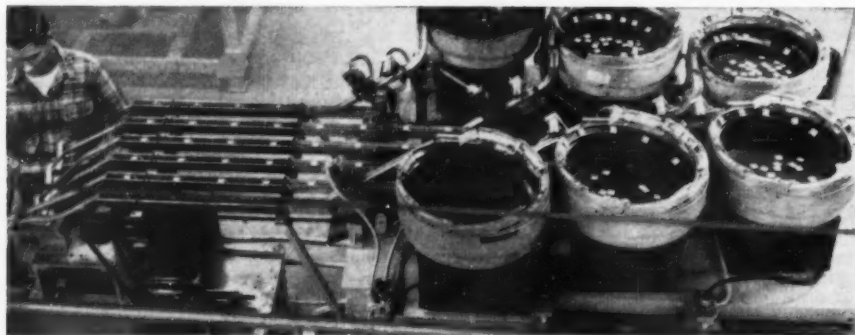
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copy of "Procedure Handbook of Arc Welding Design and Practice."

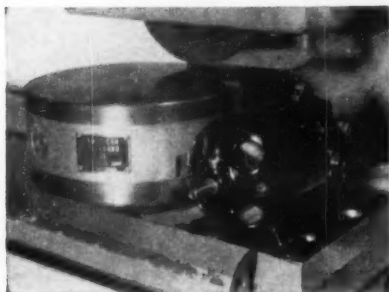
The system with its data and charts was developed by the Lincoln engineers. They have never been made available outside of Lincoln training courses. The process selection and time charts give curves for accurate cost estimating of cutting, shaping, bending and welding in various lot sizes, guiding designers to economical manufacturing.

## Elements of Heat Treatment

By George M. Enos and William E. Fontaine, late professor in charge of metallurgical engineering at Purdue and associate professor of mechanical engineering, respectively. 286 pages; well illustrated; published by John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N.Y.; price \$5.00.

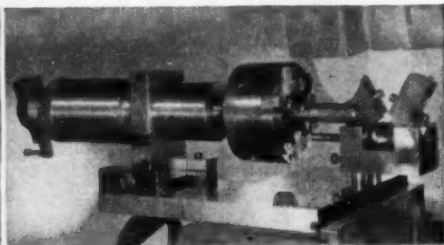
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of heat to alter the mechanical properties of metals.

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lated directly or indirectly to heat treatment are briefly discussed. Unique, cartoon-type illustrations lend clarity and interest.

### Formulas for Stress and Strain

By Raymond J. Roark, professor of mechanics, University of Wisconsin; third edition; 381 pages; published by McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 36, N.Y.; price \$7.50.

Here is a new third edition of a working handbook for engineers who are concerned with machine and structural

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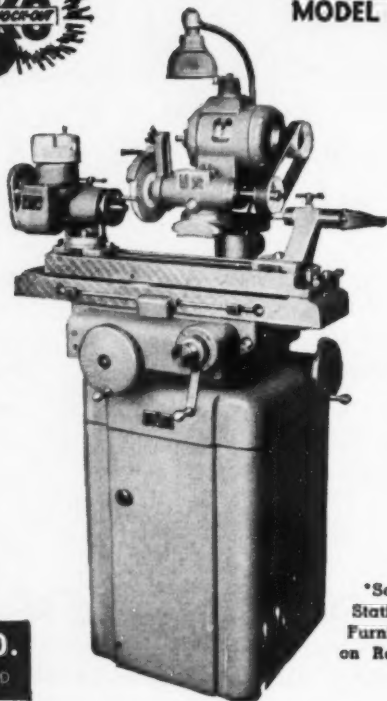


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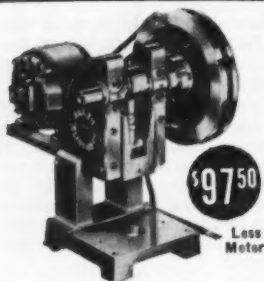
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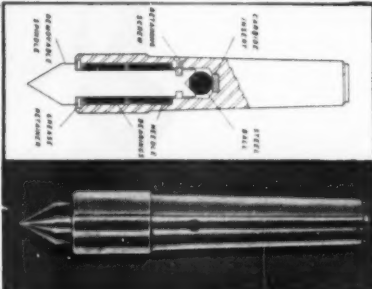
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## Theory and Design of Steam and Gas Turbines

By John F. Lee, associate professor mechanical engineering, North Carolina State College; 502 pages; published by McGraw-Hill Book Co, Inc., 330 W. 42nd St., New York 36, N.Y.; price \$9.00.

According to the publishers, this is the first complete and fundamental treatment of steam and gas turbines since Stodola. The book is mainly concerned with two things: (1) to provide a textbook for use in graduate and undergraduate mechani-

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### Farm Arc Welding

By V. J. Morford, professor, Department of Agricultural Engineering, Iowa State College of Agriculture and Mechanical Arts. 456 pages, extensively illustrated; published by The James F. Lincoln Arc Welding Foundation, Cleveland 17, Ohio; price \$2.00.

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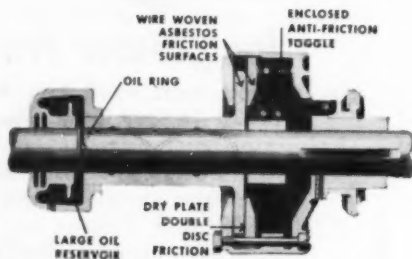
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By James F. Young, consultant on the staff of the vice-president, engineering, General Electric Co., major appliance division, Erie, Pa. Nearly 500 illustrations; 1074 pages; second edition; John Wiley & Sons, Inc., New York, N.Y., publishers; price \$3.50.

This second edition of "Materials and Processes" expands a philosophy of instruction which was enthusiastically received in the book's initial edition. Here is a work which provides, in one volume, all the interrelated information needed to apply the engineering fundamentals of materials and processes to the design, production, and control of products. It treats topics from the viewpoint of the engineer, answering an important need in engineering education and practice.

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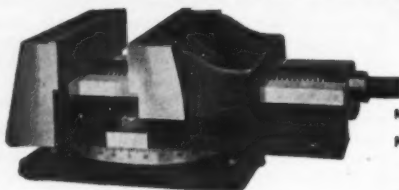
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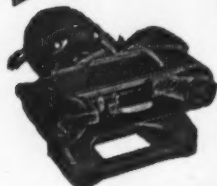
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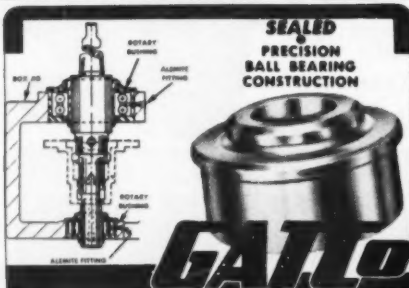
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Telephone PLYMOUTH 1472

pletely up-to-date, the book includes a thorough coverage of the developments of the last ten years, incorporating: recent advances in physical metallurgy and chemistry; useful material property data and process tolerances; the latest industry practices; an inclusive summary of the topical literature.

Each chapter is complete in itself. The work may be used to cover a course of study or a specific topic. The great mass of illustrative data included offers a unique check for the consideration of actual problems, and its usable organization makes reference to any desired subject easy.

## Handy-Quik Tolerances

By Alexander Michael, Sr.; 100 pages; published by Handy Length Book Co., 3507 17th St., S.W., Canton, Ohio. Price \$1.00; leather covered, \$2.98.

This revised booklet, besides being useful for the skilled workman, will also be very helpful to the young man learning a trade as an apprentice or trainee as it contains tables commonly used in industry, and new and quick methods for learning and memorizing industrial fractions and decimals, without the use of a decimal equivalent chart.

## HOW TO SLASH RIVETING COSTS

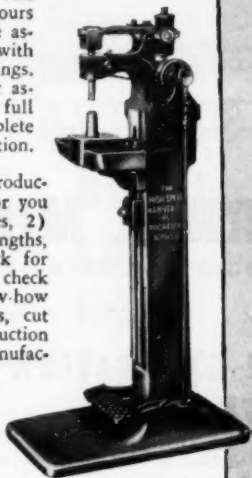
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Manufacturers of HIGH SPEED Cold Riveters, Staking Machines,  
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## Technical FILMS

### Hold Everything

20 min., 16 mm., sound, color, on Allen socket screws. Produced by Bay State Film Productions for Allen Mfg. Co., Sales Dept., Hartford 2, Conn.

The film is based on three major themes. The first describes the reasons why leading industrial distributors carry the Allen line. The second theme points up the important differences between socket screws

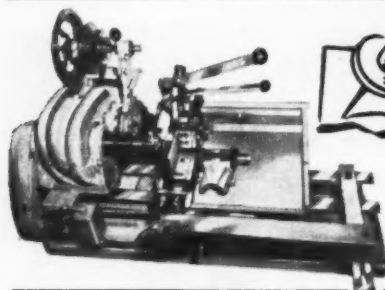
and other types of fasteners. The third and concluding theme illustrates the advantages that the company believes their socket screws maintain over those of other makes.

### Air, Water and Industry

22 min., color, sound, 16 mm., free loan; The Dow Chemical Co., Midland, Mich.

The problem of pollution and its control is the subject of this non-technical film, which considers the nature and origin of various common wastes and the gradual development of serious pollution as the United States has become increasingly urban and industrialized.

This presentation gives special attention



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MAT attachments turn precision parts never before possible, 1/32" to 3-1/2", any metal or plastic bar, .0005 tolerances, micro finish, one single cut. NO Bushings. Steady Rests, Centers, Rollers, or Holes to drill. Set up or take down in 5 minutes. Write for details or demonstration.

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FROM PYGMY 0 to GIANT 5

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Precision Machines for Tool Room  
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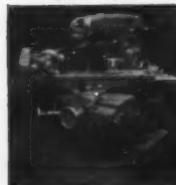
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to industrial pollution problems, shows what typical industries are doing to abate pollution, and utilizes the sponsor's Midland, Michigan, Division as a case study to illustrate the geographic, research, engineering and other factors involved in dealing with complex pollution problems.

#### **Welding Advances With Aluminum**

28 min., 16 mm., color, sound. Available on company letterhead, Aluminum Co. of America, 1501 Alcoa Bldg., Pittsburgh 19, Pa.

Shows welding of aluminum using both the tungsten arc and consumable elec-

trode methods. Outstanding illustrations of the use of these inert gas methods are presented to demonstrate some of the many jobs simplified in manual, automatic and semi-automatic welding operations. These include the pressure vessel welds, weld repair of castings and production of weldments among others.

#### **Taps and Tap Terms**

15 min., sound. Showings available for groups. Threadwell Tap & Die Co., Greenfield, Mass.

Film contains no advertising and is designed to explain in simple terms the

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kinds of taps, terms applied to various parts of a tap. At present, showings are being conducted by Threadwell representatives and distributors.

#### Gaging, Taps, Grinders

Sound slide films in three groups available for showings by schools, colleges, industrial meetings, etc., The Sheffield Corp., Dayton 1, Ohio.

One group of films includes "Precision for Production," "Air for Every Gaging Job," "Report from Industry," all dealing with the various applications of air gages.

Another series—"The Crushtrue Process," "The Microform Grinder," "The Thread & Form Grinder"—covers the latest developments in the form and thread grinding. There are three films, "Murchey Precision Pak," "Murchey Tangent Die Heads," and "Murchey Type L Collapsible Taps," that reveal many applications of the Murchey products, division of the Sheffield Corp. In addition there is an educational film, "The Advance Guard," and another, "Why Gamble in Gages," covering the various types and kinds of



bide-tipped reamer conditioning. Manual includes data on chamfer size . . . recommended clearance angles . . . method of O.D. and face of flute repair . . . special sharpening techniques for specific applications . . . diamond wheel requirements . . . other tips to improve your tool servicing technique.

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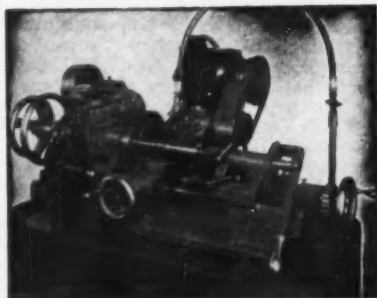
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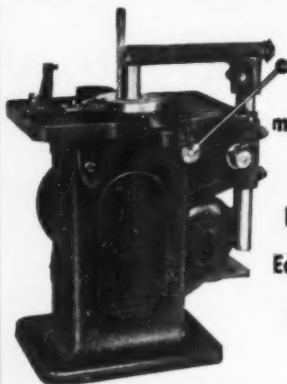
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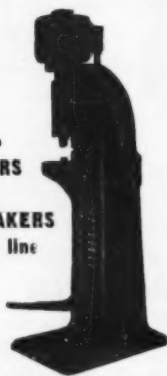
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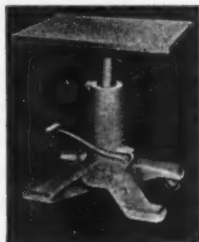


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37 minutes running time, color, sound, 16 mm; available from Modern Talking Picture Service, Inc., 45 Rockefeller Plaza, New York 20, N.Y.; free loan.

This is a tour through a modern foundry. Of special interest to design engineers and users of castings; concerned with techniques of specialized operations

in casting metals ranging from valve castings to jet components. Pattern and molding functions, gating heat-treating, gating, etc., are covered.

#### Techniques of Surface Grinding

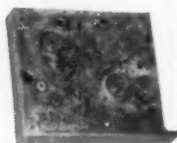
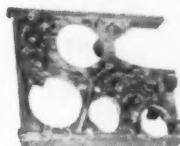
31 minutes; 16 mm., sound, color; DoAll Co., DesPlaines, Ill.; free loan.

A comprehensive film, this shows the operating methods and design factors affecting good results in surface grinding, and the striking diversity in modern sur-

## Contract Jig Boring What

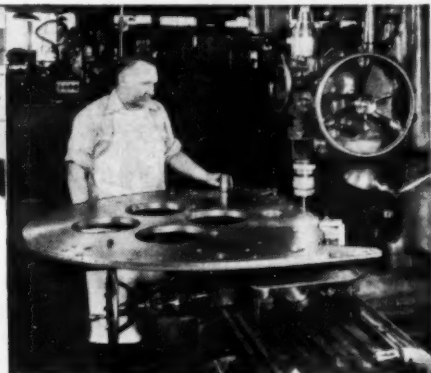
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#### Balanced Positioners

450 ft. movie on universal balanced positioners. Aronson Machine Co., Arcade, N.Y.

The company's positioner is illustrated

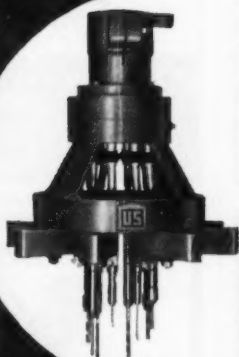
as a comparison with other positioners and other methods of positioning work from a time saving and improved workmanship basis.

#### Industrial Purchasing

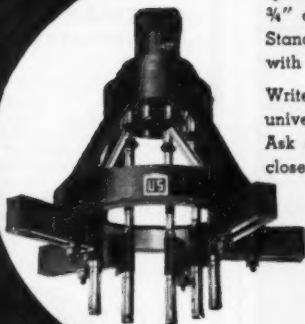
20 min., 16 mm., color, sound. Rent or purchase from Encyclopaedia Britannica Films Inc., 1125 Central Ave., Wilmette, Ill.

Portrays director of purchasing in an industrial plant in his capacity as buyer of everything purchased by his company and reveals actual problems of buying materials and machines. The presentation

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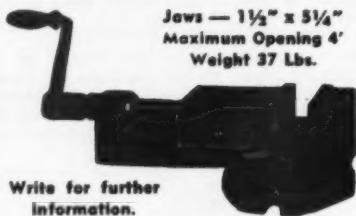
616-618 Burns St., Cincinnati 4, Ohio



## NEW BRITAIN

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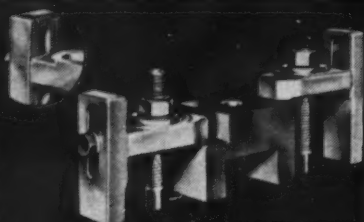
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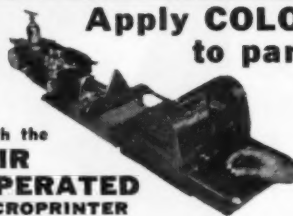
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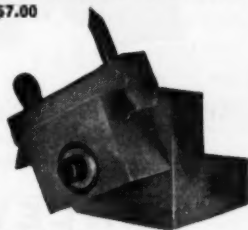
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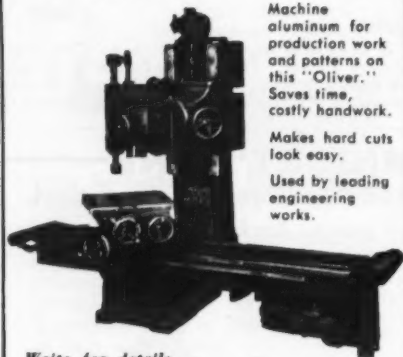


(Shown with gear-cover removed)

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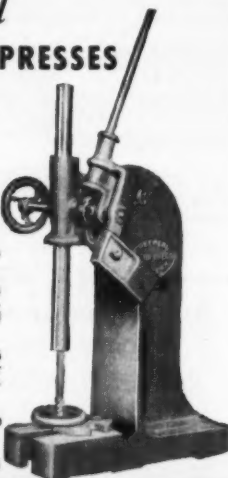
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Flexibility and smooth operation make  
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**SWARTZ & WHITE**  
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The "Gray Day . . ." is a humorous film showing how a couple of accidents tied up time, spiraled department costs and held down production. The other combines cartoon and live shots in an interesting sequence, showing foremen how to make sense out of the jumbled evidence of accident reports, giving a simple workable system for classifying accidents, interpreting facts, translating them into action.

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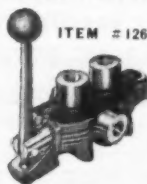
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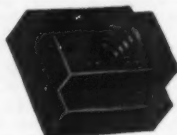
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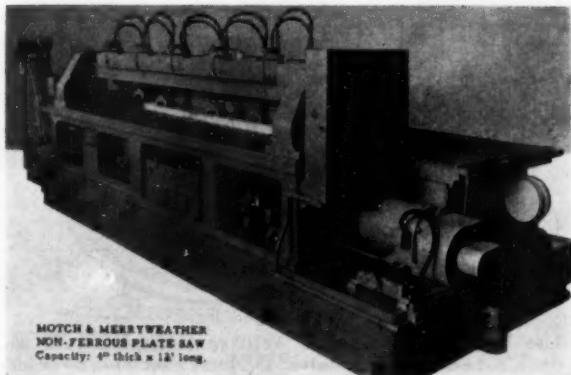
# What's New

IN

METALWORKING

## New M & M high speed plate saw

This new high speed plate saw is said to handle aluminum plates up to 4" thick x 12' long. Coolant sump, chip compartment and chip conveyor are built into the base. The hydraulic tank and pump with its motor are in a centrally located recess. The surface of the plate is equipped with free rollers in small cylinders, actuated hydraulically to raise the stock from the surface of the table. This enables the operator to position the stock more easily. Rollers are provided in two directions, each under the control of the operator. The stock is clamped by a heavy rail with direct-acting hydraulic cylinder hold-down clamps. These clamping units can be positioned along the rail to the most desirable position, depending upon the length of stock. Each clamp has a shut-off valve to make it inoperative if it is not needed. A single-speed saw head is mounted on a dovetail slide beneath the table. Variable feed rate of this head is provided by a vari-drive at the right-hand end of the table through a feed screw and nut arrangement. An automatic cable take-up reel supports



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NON-FERROUS PLATE SAW  
Capacity: 4" thick x 12' long.

the power cable to the motor on the saw head carriage. An adjustable fence squares up the stock. Manufactured by The Motch & Merryweather Machinery Co., Dept. B, Penton Bldg., Cleveland 13, Ohio.

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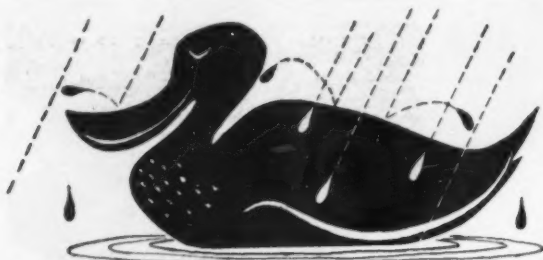
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Operation is carried out by an alternate lowering and raising of the spindle against set stops, which can be adjusted to fine tolerances. Vertical displacement of the oscillating movement of the spindle can be adjusted from 0.08" to 0. Lowering and raising of spindle are hydraulically controlled, and transmission is absolutely play-free. Kurt Orban Co., Inc., Dept. B, 205 42nd St., New York, N.Y.

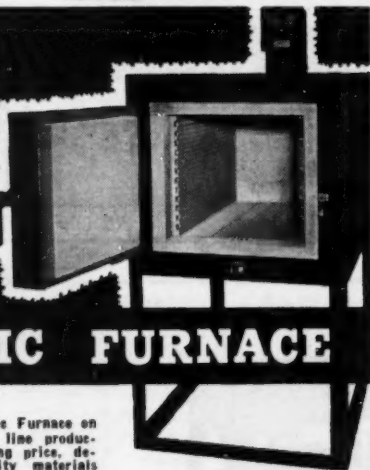
### New Crowningshield vertical miller

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for flexibility, ample range, and versatility; available with a Bridgeport Model "M" milling and drilling attachment and adapters as well as the Crowningshield milling unit or without any head for those having a spare that will fit this miller; can be fitted with air feed to the table if desired.

Some specifications include: table size 8 $\frac{1}{8}$ " x 28"; table travel (long.) 16 $\frac{3}{4}$ "; vertical feed with Bridgeport head 13 $\frac{1}{4}$ "; vertical feed with Crowningshield head 15"; cross feed 6"; max. dist. spindle to table—Bridgeport 13 $\frac{1}{2}$ "; Crowningshield

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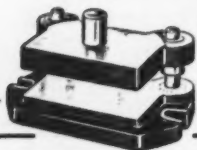
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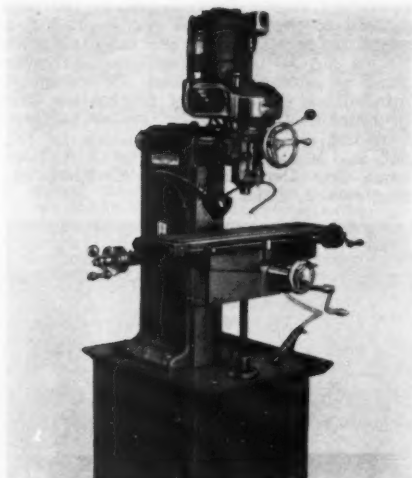
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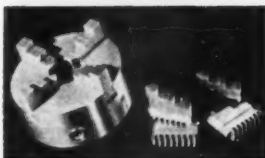
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Model	Size	Weight (lbs.)	Bore (Chuck)	Thread (Backplate)	Price
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30ABP	5"	15	1 1/2	1 1/2"-8	\$2.50
30ABP-2	5"	15	1 1/2	2 1/4"-8	\$2.50
31BP	6"	21	1 7/8	1 1/2"-8	\$6.00
31BP-2	6"	21	1 7/8	2 1/4"-8	\$6.00
52BP-2	7 1/2"	33 1/2	2	2 1/4"-8	\$5.00

### Universal Four Jaw, Two Sets of Jaws, Two Pinions

Model	Size	Weight (lbs.)	Bore (Chuck)	Thread (Backplate)	Price
30AYBP	5"	15 1/4	1 1/2	1 1/2"-8	\$55.00
31YBP	6"	22	1 7/8	1 1/2"-8	\$5.00
31YBP-2	6"	22	1 7/8	2 1/4"-8	\$5.00
52YBP-2	7 1/2"	33 1/2	2	2 1/4"-8	\$5.00

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35CBP	4 1/2"	7	1	1 1/2"-8	\$23.50
34BP	6"	14	1 1/2	1 1/2"-8	\$30.00
34BP-2	6"	14	1 1/2	2 1/4"-8	\$30.00
37BP-2	8"	22	1 1/2	2 1/4"-8	\$42.50

When ordering please specify make of lathe to insure exact fit

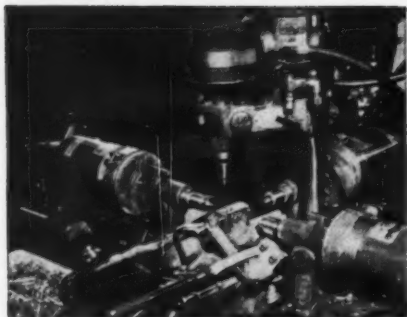
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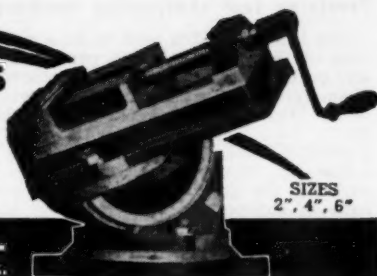
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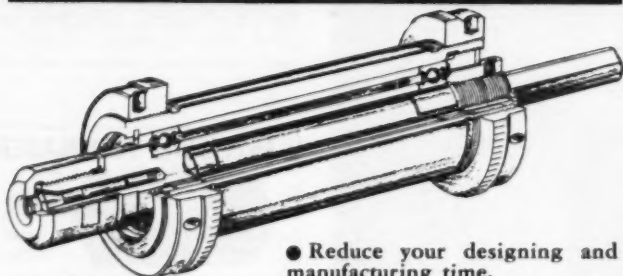
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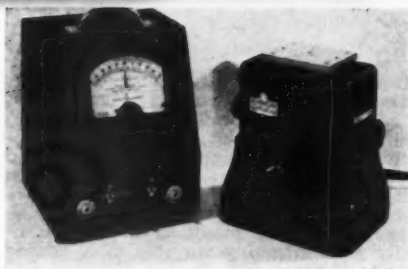
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Feed (in/min)	1¾	11½
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Machine Army Automatic Rifle Receivers in 1/5th the time . . . to better finishes . . . with 30 times more pieces per grind than conventional cutters!

An amazing story, but TRUE! Working on tough, scaly Perlitic Malleable iron castings, Nelco carbide tipped slab mills took a healthy .100-.125 bite—a full 3½ inches wide—on a 3 horsepower machine at the incredible feed of 11½ inches per minute! Not only did the Nelco slab mills surpass conventional cutters in speed, but produced better finishes, 400% more production per machine!

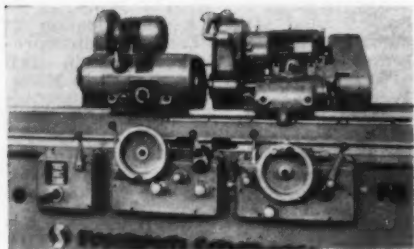
This example is typical of the time-saving, money-saving benefits users report when using Nelco carbide tools. With nearly 800 tools regularly stocked, you can order—and GET—"special" tools at standard prices. For full information on the complete Nelco line, send today for 48 page catalog.

# NELCO TOOLS

NELCO TOOL COMPANY, INC. MANCHESTER, CONNECTICUT

**For that Extra  
EDGE in Production**

Visit Nelco at Booth 1413—ASTE Show



from 16" to 32" swing and with center distances from 40" to 160". Box-shaped bed has bellow-protected bedways, reinforced; the work table top, of triangular cross-section, can be swiveled for grinding slender tapers, the amount of taper being set by graduated scale and vernier. The work carriage can be traversed either manually or hydraulically with infinitely variable table speeds up to 12 ft. p. min. Parker Machine Co., Inc., Dept. B, 158 Pioneer St., Brooklyn 31, N.Y.

# "RFC" ROLL-FEEDS

## FITS ANY PRESS

For side or rear feeding. All attachments for installing furnished, including disc and connecting linkage.

## CAN'T SLIP

Each wedge has four points of contact to safeguard accuracy.

## REVERSES INSTANTLY

Merely shift feed finger spring from one lug to the other.

## FEEDS IN THOUSANDTHS

Amazingly accurate stock movement assured.

## MAINTAINS ORIGINAL SETTING

Regardless of use or wear. No ratchets or pawls to wear down and "Throw off" feed spacing.

**Ready for mounting! Furnished complete.**

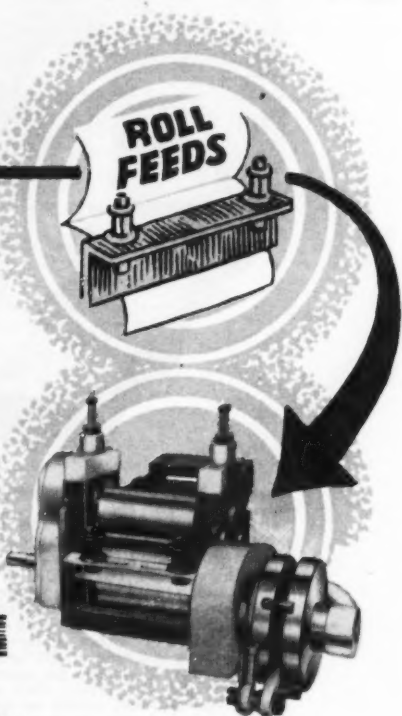
Write today for latest Bulletin.

**EARLY DELIVERY ON STANDARD MODELS**

*Roll-Feeds Corporation*

Tel. Pawtucket 2-2200

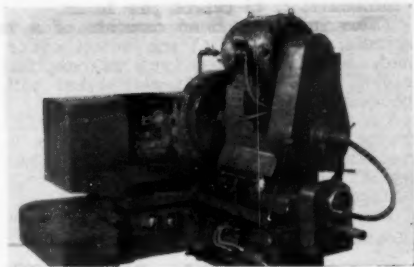
PAWTUCKET, RHODE ISLAND



### Precise spindle grinding at 25 pieces per hour

This Gardner No. 526-26" horizontal spindle grinder consists of base of welded steel construction, supporting the head slide upon ball bearing ways. The head slide is provided with a hydraulic cylinder to hold the head in against a micrometer adjusted stop, which controls the amount of stock to be removed.

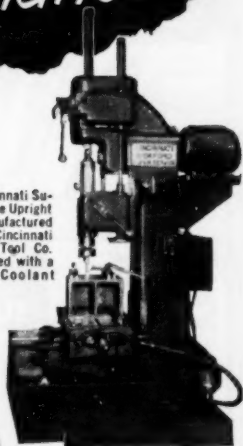
One production story is as follows: Part & material, horseshoe magnets—Alnico; grind ends (3 and 5 sq. in. areas); stock



## Cut Maintenance

TO A  
MINIMUM  
WITH A  
**RUTHMAN  
GUSHER  
COOLANT PUMP**

• This Cincinnati Super Service Upright Drill manufactured by the Cincinnati Bickford Tool Co. is equipped with a Gusher Coolant Pump.



Check the features of every Ruthman Gusher Coolant Pump. They assure *you* of absolute minimum maintenance on your Gusher Pumps.

- Totally enclosed drip-proof motors.
- Pre-lubricated heavy-duty ball bearings.
- No packing or priming necessary.
- Electronically balanced rotating assembly to cut vibration to a minimum.
- No metal to metal contact within the pump.

*Always specify Gusher Coolant Pumps.*

**THE RUTHMAN MACHINERY CO.**

1816 READING ROAD

CINCINNATI, OHIO



removal, 3/64" to 1/16" max. overall; accuracy, .0003" to .001" for flatness, .010" uniformity; 25 pieces per hour.

The grinding head consists of a heavy spindle, 3.937" dia. at the wheel collar end, a double roller type bearing for radial load, and two special thrust ball bearings, adjustable.

The hydraulically-operated work table travels on dovetailed ways, and has a working surface approximately 15" wide by 18" long, with "T" slots for mounting fixtures.

The fixture illustrated is a hand-

clamping type with adaptors for the various sizes of magnets.

A 25 h.p. motor drives the grinding head.

### New optical form grinder projector-comparator

A new optical form grinder projector-comparator known as the Model OFG-200 is a dual purpose optical instrument as it has been designed to be used both as an optical form grinder projector and as a conventional universal type optical



**THE COMPLETE LINE FOR  
EVERY INDUSTRIAL PURPOSE**  
 over 5000 shapes, sizes and cuts



1/8" SHANKS



1/4" SHANKS



1/2" SHANKS



FULL SIZE



**GROBET INSIDE  
TUBE-DEBURRING  
FILES**



**GROBET  
TUNGSTEN BURS**  
Inexpensive,  
but finest  
at any price.

**SOLD THROUGH  
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SUPPLY HOUSES**

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High Speed Rasps**




**GROBET  
FIN FILES**

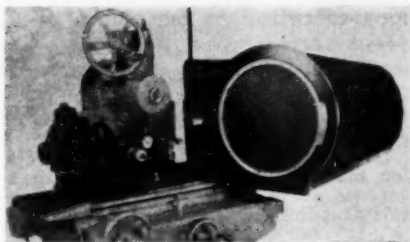
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 421 CANAL STREET      NEW YORK 13, N. Y.

**NEW YORK • CHICAGO • DETROIT • MONTREAL • TORONTO**

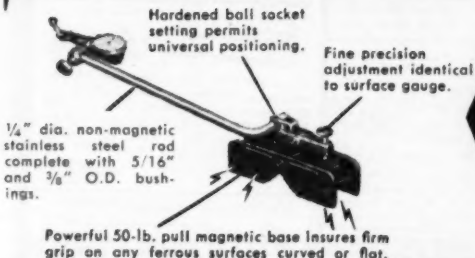
Visit our Booth 434, Precision Hall, ASTE Exposition, Phila., April 26-30

comparator. The instrument may be used on most standard precision surface grinders of either 6" x 18" or 8" x 24" size.

The instrument features the exclusive new long focal length Portman "Multi-Phase" optical system so that it may be used on all types of work. Lenses to provide magnifications of 10X, 20X, 25X, 31¼X, 40X, 50X, 62½X and 100X are obtainable as standard equipment. The Portman Instrument Co., Inc., Dept. B, Town Dock Rd., New Rochelle, N.Y.

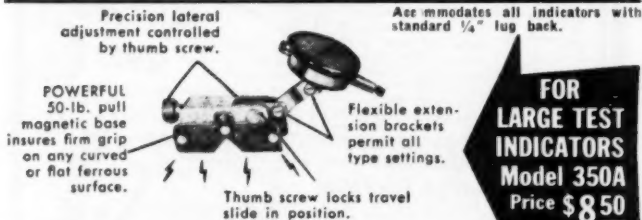


## CUT INDICATING TIME with MAGNA-HOLDER Indicator BASES



**FOR  
SMALL TEST  
INDICATORS  
Model 200B  
Price \$5.45**

## TAKE SECONDS—NOT HOURS



**FOR  
LARGE TEST  
INDICATORS  
Model 350A  
Price \$8.50**

• Magna-Holders are produced by the Country's largest exclusive manufacturer of magnetic base instruments and custom accessories including MAGNA-HOLDERS for floodlights, inspection lights, flashlights, safety shields, and magnifying glasses. If your dealer cannot supply—order direct. Write Dept. 44-D.

### CULLEN

Mfg. Co.

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RACINE, WISCONSIN

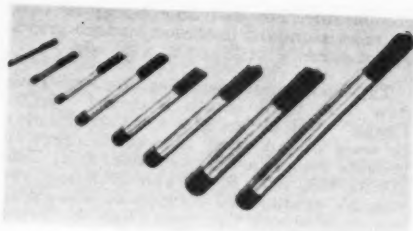


## New specifications for tool & die set-up studs

The Jergens Tool Specialty Co., Dept. B, 712 East 163rd Street, Cleveland, Ohio, has announced a new range of standard sizes of set-up studs.

Used principally in tool and die work for machine and fixture set-up, these Jergens studs are now available from stock in diameters of  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ ",  $\frac{3}{4}$ ",  $\frac{7}{8}$ " and 1" with lengths in  $\frac{1}{4}$ " multiples up to 12" long.

These new studs are made of stress-



proof, heat-treated alloy steel with tensile strengths of over 125,000 psi.

## SAVE UP TO 85% ON GOVERNMENT SURPLUS



### MAGNI-FOCUSER

Has fine ground lenses of optical glass. Neutralizes eye strain from close work. Binocular design gives third dimensional vision. Allows freedom of both hands. Wear over glasses. Plastic frame with adjustable headband.

SIZES: 20" focal lgh.,  $\frac{1}{16}$  power - 14" focal lgh.,  $\frac{1}{8}$  power, 10" focal lgh.,  $\frac{1}{4}$  power; 8" focal lgh.,  $\frac{1}{2}$  power . . . . . price each ONLY

1050

### OTC TOOLS

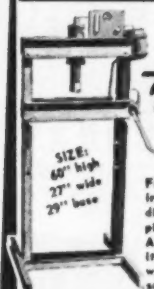
See our complete line. Pullers for Gears, Bearings, Wheels, Pulleys, Bushings, Shafts, etc.

### NEW 10 TON HYDRAULIC PRESS

Use this Press in the Shop or take it with you on the job.

Frame is 4" welded channel iron. Has 4 1/2" stroke, 2 1/2" diam. ram. Valve operates piston in both directions. Adjustable platform. Positive power Hand Pump with handle. 2000 PSI pressure gauge.

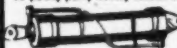
12900



SIZE:  
40" high  
27" wide  
29" base

### HYDRAULIC EQUIPMENT

We stock over 100,000 Hydraulic Cylinders in 106 different types and sizes. These can be adapted wherever tremendous power is needed to push, pull, hoist, mould or drive, etc.



### SPECIAL

Gives 20,000 lb. thrust using 1500 PSI line pressure as obtained from our hydraulic pumps. Will produce up to 40,000 lb. thrust with 2000 PSI. Can also be used on a low pressure 800 PSI. sure air system. Has 4 1/2" bore; 18" stroke; 305" long. Ideal for shop.

Part No. 29

NEW 4395

### HYDRAULIC HAND PUMP

Operating pressure 1500 PSI. Cap., 1.5 cu. in per complete cycle . . .

1275

### HYDRAULIC ACCUMULATORS

A-2B FLOATING PISTON TYPE - 4"x 18" Built to stand 2,000 PSI

1275

A-5 VICKERS - 10" dia. Ball type. Built to stand 2000 P.S.I.

2450

NOTE: Stocks include bargains in Hydraulic Pumps - Valves - Motors - Boosters - as well as Oil, Water and Fuel Pumps, etc.

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Dept. MTB-4  
LOS ANGELES 58, CALIF

Pay by M.O. or check. P.O.'s accepted from O.K. firms. 15 deposit with C.O.D.'s. Prices FOB Los Angeles.

# Special TAPS?

WE HAVE THEM IN STOCK  
for IMMEDIATE DELIVERY

HIGH SPEED SPECIAL RIGHT HAND TAPS

SIZE	THREAD	SIZE	THREAD	SIZE	THREAD
4	32-48-66-84	3/8	12-16-18-20-27-28-32-36-40-48	1-3/4	8-10-12-14-16-18-20-24
5	30-32-36-48-80	7/16	12-16-18-22-24-27-28-30-32-36-40	1-13/16	8-10-12-14-16-18-20
6	36-48-56-80			1-7/8	8-10-12-14-16-18-20-24
7	32-40-48	1/2	12-14-16-18-22-24-26-27-28-30-32-36-40	1-15/16	8-10-12-14-16-18-20-24-28
8	24-30-36-38-40-44-48	9/16	10-12-14-16-18-20-24-26-27-28-30-32-36-40	2	4-1/2-8-10-12-16-18-20
9	24-28-32-40-48	5/8	12-14-16-20-24-27-28-32-36-40	2-1/16	12-14-16-18-20
10	28-36-40-48-64	3/4	11-16-18-20-24-27-28-30-32	2-1/8	12-16-20
12	20-28-32-36-48	11/16	9-11-12-14-16-20-24-26-27-28-32	2-3/16	12-16
14	20-24-28	13/16	10-14-16-20-27-32	2-1/4	4-1/2-8-12-14-16-18
1/16	60-64	7/8	10-12-16-18-20-24-27-28-32	2-5/16	12-18
5/64	36-48-72	15/16	8-9-10-12-14-16-18-20-24-32	2-3/8	12-16-18
3/32	48-56-60	1	10-12-16-18-20-24-27-32-40	2-1/2	8-10-12
7/64	48-56-60	1-1/16	12-14-16-18-20-24	2-9/16	18
1/8	32-40	1-1/8	8-10-14-16-18-20-24-32	2-5/8	12-16-20
5/32	32-36-40-48	1-3/16	8-10-12-14-16-18-20-24	2-3/4	18
9/64	36-40-48	1-1/4	8-10-14-16-18-20-24-32	2-7/8	8-12-16
11/64	36	1-5/16	12-14-16-18-20-24-32	3	8-16
3/16	20-24-32	1-3/8	8-10-14-16-18-20-24	3-1/4	8-12-16
13/64	32-36-48	1-7/16	8-10-12-16-18-20-24	3-1/2	8-12-16
7/32	24-28-32	1-1/2	8-10-14-16-18-20-24-28	3-7/8	8
1/4	16-24-26-27-30-32-36-40-48	1-9/16	18-20-24-36	4	8-12
5/16	20-22-27-28-32-36-40	1-5/8	5-8-10-12-13-16-18-20-24		
		1-11/16	10-12-14-16-18-20-24		

## HIGH SPEED LEFT HAND TAPS

SIZE	THREAD	SIZE	THREAD	SIZE	THREAD
0	80	3/8	16-24-32	1-3/8	6-8-10-12-16-18-20-24
1	56-64-72	7/16	14-20-28	1-7/16	8-10-12-14-16-18-20
2	56-64	1/2	12-13-20-28	1-1/2	6-8-10-12-16-18-20
3	5A	9/16	12-18-20-24	1-9/16	8-10-12-16-18-20
4	32-36-40-48	5/8	11-12-16-20-24	1-5/8	8-10-12-14-16-18-20
5	48-44	11/16	11-16-24	1-11/16	8-10-12-14-16-18-20
6	32-36-40	3/4	10-16-18-20	1-3/4	8-10-12-14-16-18-20
8	32-36-40	13/16	10	1-13/16	8-10-12-14-16-18-20
10	24-30-32-40	7/8	9-12-14-18-20	1-7/8	8-10-12-14-16-18-20
12	24-28-32	1	8-12-14-16-18-20	1-15/16	8-10-12-14-16-18-20
1/4	20-28-32	1-1/8	7-12	2	4-1/2-10-12
5/16	18-20-24-26-32	1-1/4	7-12-16-18		

## LEFT HAND AND SPECIAL DIES IN STOCK

Prices on Application

New Sizes Added Frequently

### NOTE:

Oversize taps. Special size reamers. H.S. extension drills. H.S. Taper length drills No. 1 to No. 60—Letter sizes A. to Z. Fractional sizes 1/8" to 1/2" 12" Overall 9" flute length. H.S.S. aircraft drills 6" and 12" long.

We Specialize In High Speed Cutting Tools

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617-19 W. Randolph St., Chicago 6, Ill. PHONE: RAndolph 6-4113

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# SUBSTANTIAL SAVINGS ON NEW TOOLS

- CUTTING TOOLS
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- HAND TOOLS
- PRECISION TOOLS
- POWER TOOL ACCESSORIES

... and a Tremendous Variety of Special tools not stocked elsewhere.

**Free 80 Page Catalog on Request**

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## hall COLLET CHUCKS

for  
**SPEED,  
ACCURACY,  
ECONOMY**



Automatic adjustment speeds up production in multiple operations with push-out type HALL COLLET CHUCKS. Full spindle capacity or over. Tremendous grip over or under stock size to .007—without adjustments. All grip ...no slip. No bearings...no heat or lost power. Instant release without stopping lathe.

**SATISFACTION GUARANTEED!**

**Made in Two Sizes to Fit Your Requirements:**

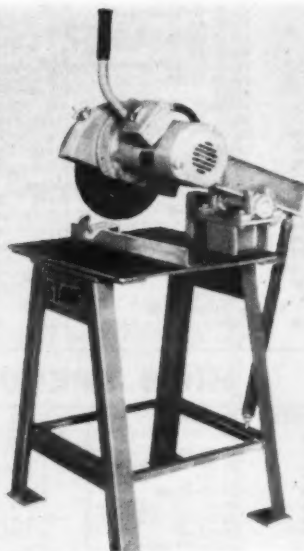
Model A...1" (max. capacity 1-1/16")  
Model B...2" (max. capacity 2-1/16")

Round, square or hexagon collets, plain or serrated  
**No. 3 Collet Pads Now Available**

Write today for illustrated catalog and price list—Dept. A-12

**HALL MANUFACTURING COMPANY**

672 FULBROOK DRIVE, LOS ANGELES 24, CALIFORNIA



### Cut-off machine has wide application

The new Stone Model M-35 cut-off machine has been developed to give industry a low-cost machine with wide application in all metalworking plants according to Stone Machinery Co., 614 Fayette St., Manlius, N. Y.

The machine is equipped with a full 3½ h.p. geared-in-head motor. This direct

drive permits delivery of full power to the cutting edge with resulting faster cutting speeds and longer wheel life, it is claimed.

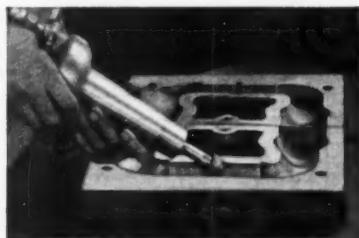
It has a 12" abrasive wheel for cutting ferrous metals and a 12" steel saw blade for cutting non-ferrous metals. Capacity of the machine in ferrous is 1½" solids, 2½" o.d. pipe and 2½" structurals. Capacity in non-ferrous is 2½" solids and 3" tubing and extrusions.

## Carbide inserts in socket heads increase their life 15 times

J. H. Williams & Co., Buffalo, makers of tool wrenches, faced a serious problem—case hardened, self-tapping screws played havoc with power-driven socket heads, even when made of the best alloy steels. Rapid wearing of the sockets caused a great deal of down time in wrench changing, resulting in very high “unit-fastened” tool cost, especially on production lines where many power wrenches were employed.

It took several years of development, but with the help of cemented carbides, and the experience of Carboly Department of General Electric Company in Detroit, the trick was turned.

Cemented carbide inserts brazed in the power-driven socket heads provided the answer. Now users of socket heads tipped with cemented carbide inserts are no longer suffering production interruptions due to wrench changing on the production lines. Users report a minimum socket head life 15 times over conventional steel sockets with lower “unit-tightening” costs.



**TOP  
SPEED  
AND  
POWER**

## for the BEST in grinding

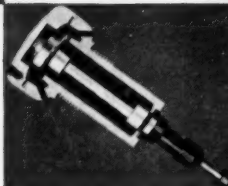
Once you've tried an Onsrud Air Turbine Grinder, you'll want no other kind. There's speed . . . and power to hold speed at full load . . . for smooth, fast work. Best of all, Onsrud Grinders are amazingly light in weight, run vibration-free, and never become even slightly warm. Exhaust air keeps the housing cool! Bearings grease packed for easy maintenance. Write for Bulletin 1129.

**ONSRUD MACHINE WORKS, INC.**

3908 Palmer Street • Chicago 47, Illinois

**Onsrud**

**AMERICA'S LEADING  
AIR TURBINE TOOLS**



### THREE SIZES



**B-18  
AIR TURBINE  
GRINDER  
75,000 RPM**



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AIR TURBINE  
GRINDER  
50,000 RPM**



**E-1A  
AIR TURBINE  
GRINDER  
38,000 RPM**



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Advertisements acceptable in THE MARKET PLACE include those for employment, sales services, production facilities, representation and related needs. Rates: \$15 per column inch per insertion. Maximum size advertisement accepted in this section is two inches.

Copy should reach us by the first of the month for next month's issue.

MACHINE and TOOL BLUE BOOK

A Hitchcock Publication

Wheaton, Ill.

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Vernier Calipers up to 80" - Height gages up to 48" at savings up to 40% to the user and excellent proposition for dealers.

## RADIAL DRILLS & VERTICAL MILLS

Territories Open

Box 231

c/o MACHINE and TOOL BLUE BOOK

We Carry the Tools in Stock

Wheaton, Ill.



**SURPLUS SALE**  
**NEW TOOL POST**  
**GRINDERS**  
REGULAR PRICE  
\$125.00  
**\$39.50**

Less Grinding wheel  
1/6 H.P. MOTOR

Takes Wheels up to 1/2" x 4"  
Extra Quill Ext. or Internal \$19.50  
Money Back Guarantee

**EDWARD J. NOLAN**  
**PULASKI, NEW YORK**

*If it's a DEEP HOLE*

*Check with HOLLOW BORING*

- PRECISION HONING
- DEEP HOLE DRILLING
- HOLLOW BORED FORGINGS

## HOLLOW BORING CORPORATION

85 PRESCOTT STREET  
WORCESTER, MASS.

## WANTED

## MACHINE TOOL SALESMAN

Mechanical engineering degree required.  
Excellent future. Include full details with  
first letter.

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Wheaton, Ill.

## DROP FORGINGS

To Your Specifications  
Prompt Quotations

**BALDT ANCHOR CHAIN**  
**& FORGE DIVISION**

P. O. Box 350

Chester, Pennsylvania



## GEARED HEAD RADIAL DRILL PRESSES LOW COST VERTICAL MILLING MACHINES

Full Line of Vernier Calipers and Height Gages

Splendid Opportunity for Dealers

**Masters** 3613 ARCHER CHICAGO 9, ILL.



The world's best . . . one-piece, drop-forged—not welded—of mild carbon steel, heat-treated, with head accurately milled for standard tables on lathes, planers, boring mills, milling machines, integral washer and nut. Sizes: up to 30". Typical direct prices for 10" lengths: 1/2"—\$1.36; 3/4"—\$1.36; 1"—\$1.58; 1 1/4"—\$1.89. Write for price list.

THE O K TOOL COMPANY  
MILFORD 7, NEW HAMPSHIRE

## CUSTOM MADE PRECISION

# STAMPINGS

IN SMALL LOTS

Low tool cost . . . 15% to 20% of the cost of permanent tools. We guarantee delivery on date specified. • WRITE for detailed information or a price quotation.

**DAYTON ROGERS**  
*Manufacturing Company*  
MINNEAPOLIS 7C, MINNESOTA

### Ready Soon MACHINE TOOL RECONDITIONING — illustrated —

Write today for free circular

**MACHINE TOOL PUBLICATIONS**  
215 Commerce Bldg. East 4th Street  
St. Paul 1, Minn.

Small, fully equipped machine shop desires new or existing product to manufacture. Fixed price or royalty basis. Very desirable location.

Write Box 233 c/o BLUE BOOK  
WHEATON, ILL.

### Multi-wheel grinder

A new Type CM-1 heavy duty semi-automatic multi-wheel grinder has been announced by Norton Co., Dept. B, Worcester 6, Mass. This machine was designed for grinding parts having multiple diameters, such as transmission and motor shafts and the line bearings of cranks and camshafts, simultaneously in a single automatic plunge-grind cycle. The heavy

wheel spindle has a body diameter of 12", and is supported at each end in cartridge type bearings.

Multiple wheels, 36" dia., are carried on the spindle body between bearings to a maximum overall span of 30" including spacing collars. Heavy proportions throughout the wheel head, which moves on widely spaced 74" long ways, contribute to fast grinding action, fine finish and excellent wheel life.



### INDICATORS SERVICED ALL TYPES DOMESTIC or FOREIGN

Our modern equipped Inspection Laboratory and skilled personnel are ready to give you fast service and accurate inspection.

**QUALITY CONTROL CORP.,**

- Certified
- Thread Gage Inspection
- Thread Plugs Checked
- Thread Rings Set & Sealed

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New York 13, N. Y.



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**UNTIL MODERN TIMES,** THERE STILL EXISTED IN CORNWALL, ENGLAND, CRUDE, PRIMITIVE LOCKS PATTERNED AFTER THOSE WHICH PHOENICIAN NAVIGATORS TRADED TO NATIVES FOR TIN HUNDREDS OF YEARS AGO!

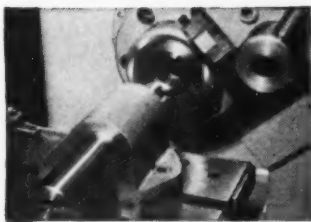
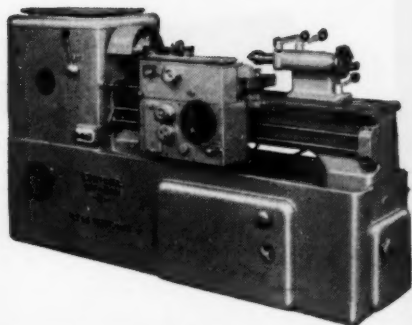


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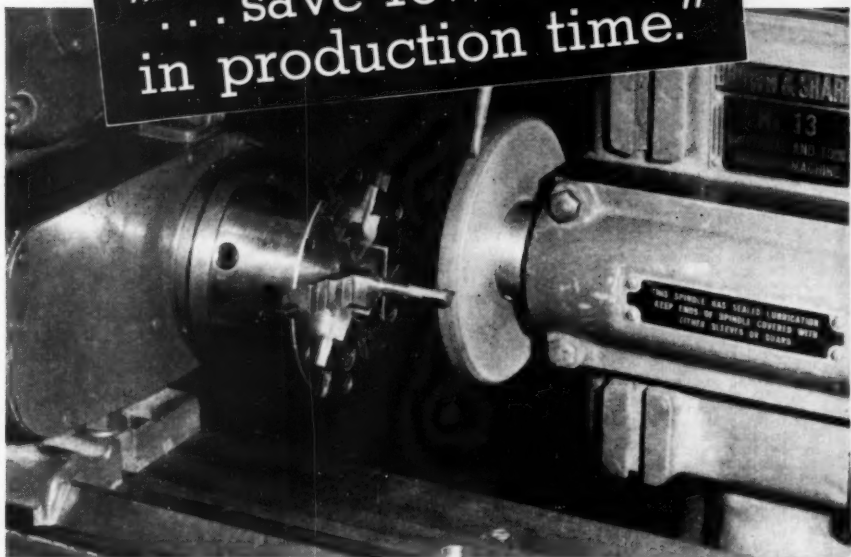
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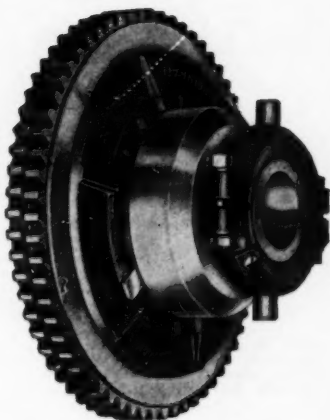
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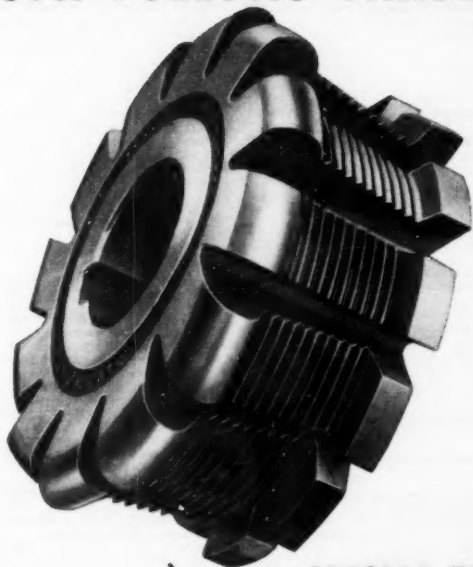
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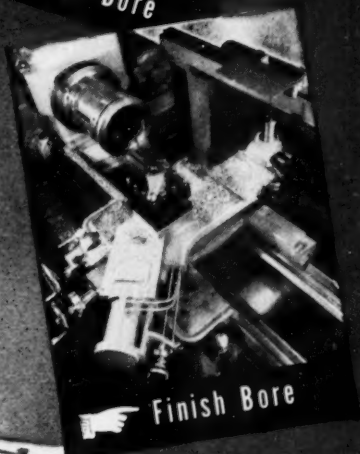
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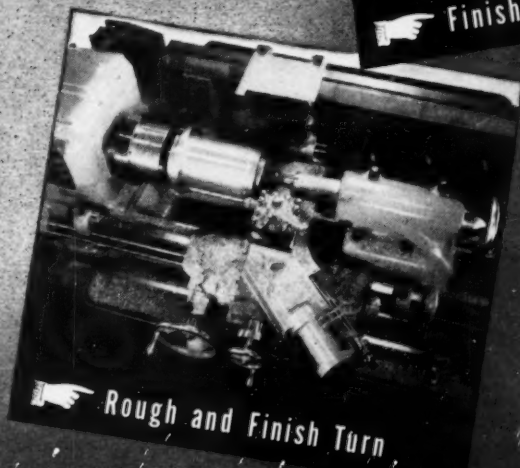
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